

# **University News**

**MONDAY, JUNE 27, 1988**

**Rs. 1.50**

**Universities and Continuing Education**



**The Inevitable Tensions**



**University Education in Bihar**



**Agenda for Agricultural Research**



**Fellowships in USA**



**Environmental Education**

# The United States Educational Foundation in India

"Fulbright House," 12 Hailey Road,  
NEW DELHI-110001

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Applications are invited for a limited number of Travel-Only Grants to the U.S. from Indian scholars who have invitations to visit U.S. under the following categories, beginning January 1989 or later.

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- (6) For Category A :

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- (7) For Categories B & C :

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#### HOW TO APPLY

Eligible applicants must complete and forward two copies of the prescribed application through the administrative head of their institution so as to reach the Foundation no later than **October 15, 1988**, together with a copy of the letter of acceptance from the U.S. institution. The original application, along with enclosures, should be sent to the Director U.S.E.F.I., "Fulbright House", 12 Hailey Road, New Delhi 110 001.

The second copy should be sent to the Regional Office of the U.S.E.F.I. (addresses given below) nearest to the applicant's place of residence except in the case of those resident in Rajasthan, Delhi, Haryana, Punjab, Himachal Pradesh, Jammu & Kashmir and Uttar Pradesh. Candidates residing in these States should send both the copies to New Delhi.

The Regional Officer,  
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"Sundeeep", 4 New Marine Lines,  
Bombay 400 020.

The Regional Officer,  
U.S.E.F.I.,  
Flat 2, Park Mansions, 57 Park Street,  
Calcutta 700 016

The Regional Officer,  
U.S.E.F.I.,  
American Consulate Building,  
Mount Road, Madras 600 006

Incomplete applications or applications which are not forwarded through the administrative head of the institution will not be considered.

Government officials should send a copy of their application through proper channel to Mr S.K. Sengupta, Under Secretary (University and Higher Education), Ministry of Human Resource Development, Department of Education, Shastri Bhavan, New Delhi 110001, as an advance copy. Consideration will, however, be given only if the application through the Government reaches the Foundation in time.

**N.B.** The application form will be reproduced by a photographic process. Therefore, please use typewriter with a clean, fresh black ribbon. If typewriter is not available, please write out your answers clearly and legibly in black ink, preferably in block letters.

# UNIVERSITY NEWS

VOL. XXVI

JUNE 27

No. 26

1988

Price

Rs. 1.50

**A Weekly Chronicle of Higher Education published by the Association of Indian Universities**

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Editor :  
SUTINDER SINGH

## Universities and Continuing Education in Industrialising and Developing Countries

Kumalini H. Bhausaali\*

### Background

In this paper, it is proposed to develop the sub-topic 'Recent developments in newly industrialising and developing countries' under the main heading of 'Universities and Continuing Education'. It is necessary for such a purpose to take a model of industrialising and developing country, and it is aimed to bring about the realities of the question of Continuing Education through the model of India. Such a procedure needs indicating the constraints that arise in a situation of diverse sociological strata needing development of new strategies and techniques to fulfil our objective.

A developing country from the economic stand point is one in which there is enough potential for economic growth if the available natural resources are optimally utilised, the economic measures of such development being the rise in per capita income over a period of time.

Developing countries have generally to contend with excessive growth of population, lack of savings and a low rate of capital formation accompanied by imbalance between the different sectors of the society and India is no exception to these characteristics. Thus, even while granting the growth that we have achieved so far and a good deal of progress that we have made over three decades of planning, the basic problem of population explosion on the one hand and the chronic shortage of capital on the other still persists.

To achieve the desired developmental planning, India naturally aims to foster industrialisation through promotion of an efficient industrial structure with emphasis on cost reduction, quality improvement and upgradation of technology.

One must not lose sight of the fact that economic development by itself does not constitute total development of a society. There are other vital dimensions which need to be considered when we speak of national development. Factors such as economic, political, social, religious, ethical all go to make an integrated identity of a nation. If economic development leads to a rise in the per capita income, the level and the quality of moral and ethical values, the accepted political ideology would strengthen or weaken the social fabric and would contribute to hasten or retard national development.

Politically, India is lauded by the world as the biggest democracy. India has accepted the socialistic pattern of society and the creation of an egalitarian society where equality of opportunity to all is the watchword. Hence, the third world countries look to India for leadership.

*Paper presented at the 14th Quinquennial Commonwealth Universities Congress, 1988.*

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The two important tenets of a social democracy, equality and social justice pose a difficult task. To meet this need, India has the largest programme of upliftment of the conditions of the weaker sections and has emphasised the role attributed to women towards gaining equality through empowerment.

The Indian society faces a dichotomy of traditionalism and modernity. This has resulted in diversity between the different social groups towards their attitudes to life styles and towards their requirements in skill and knowledge. The Indian scenario reveals a total population of 685 millions with the literacy rate at 36%.

To meet the above challenge, the Indian economy has to achieve a balanced growth of all its sectors, and industrialisation is the prime key to it. Such industrialisation requires a high rate of capital formation.

Since savings are low in a poor country, it has to make the best of its available capital resources. It is in this sense that human resources development assumes considerable importance. Recognising the importance of this facet, a Central Ministry with the designation of Human Resource Development (HRD) is created. It is accepted that one of the primary tasks of the nation is to harness the country's human resources and improve their capabilities for development with equity. Programmes for alleviation of poverty, improving health programmes, control of demographic trends, reduction of economic and social inequalities through legislative measures and social welfare and improving productivity should be integrated with educational development as these are indicators related to the progress of the nation.

The programmes would particularly focus upon women, youth and economically weaker groups to enable them to make increasing contribution to the socio-economic development of the country.

Education can be formal or non-formal. Formal higher education is entrusted to the universities and with the emerging needs of development, there has been a tremendous expansion of the formal systems of education. In 1985-86, the higher education system had a complex of 143 universities; 5723 educational institutions; 50,000 teachers; and 35.70 lakhs students.

Recipients under the formal educational system have an ultimate objective of employment. However, mass social requirements of such an education demand increasing efforts for non-formal education. It is in this context that the vast complex of formal reservoir of human resource can be best utilised.

### **Extension as Third Role of University System**

In the welter of words, new educational concepts suffer *Embrass de Riches* and continuing education under non-formal education is no exception to this dictum. The multi-dimensional concept of continuing education includes adult education, life long education, substitute education, second chance education, further education and so on. In spite of this wide diversity of terminology, the distinguishing feature of the different terms has a common core, namely, non-formal approach and non-formal process. For an individual, continuing education is a non-formal mode of learning that continues throughout life; for an individual it is an offering of a multifaceted life long educational service.

A sea change has come over the educational scene during the last century. Impact of demographic explosion spawned the new concept of continuing education to help society to adjust to continuous social and occupational change and introduce de-schooling as an alternative to the formal system.

It was as far back as in 1970 that the University Grants Commission initiated the programme of Continuing Education. Today, over 90 universities and 2,000 colleges in the country are involved in adult education, of which 30 universities and 50 colleges offer continuing education programmes.

The University Grants Commission in its policy frame in 1978, accepted the concept of extension as an equally important function of higher education, in addition to teaching and research, thus giving an opportunity to universities and colleges to promote increasing participation in a dynamic way. Guidelines were evolved emphasising that there should be maximum spread of knowledge and skills covering all sections of society not forgetting the underprivileged.

In order to have a comprehensive and integrated approach various facets of education such as continuing education, adult education, population education, legal literacy, science for the people, planning forums were aggregated under one single umbrella of extension.

It is a happy sign that the University Grants Commission in less than two decades has made far reaching strides to concretise extension as the third function of universities. A review undertaken has pointed out that there have been positive gains like making the system flexible and open, reflection of relevancy in restructured courses, change in attitude towards obligation to society through a two-way

process, programme expansion and emergence of Adult Education as a discipline.

The thrust areas under continuing education include:

- † Development of vocational skills and professional competence among technical, managerial, industrial and office workers, entrepreneurs and unemployed youth;
- † Remedial or bridge courses;
- † Promotion of activities for self-employment and self-reliance;
- † Need-based programmes for community development, and for particularly less privileged sections of society;
- † Training and extension packages for functionaries of various social development.

The main target groups would be women, workers including slum dwellers and migrant workers, school dropouts and unemployed youth, professionals and para-professionals, business executives and the citizens as per the demands.

### Operational Approach

The operational approach for continuing education needs an analytical definition and here I would like to refer to the one given by International Commission on Development Education :

"There are many possible definitions of **adult education**. For a large number of adults today, it is a **substitute**, for the basic education they missed. For the many individuals who received only a very incomplete education, it is the **complement** to elementary or professional education. For those who it helps to respond to new demands which their environment makes on them, it is the **prolongation** of education. It offers **further** education to those who have already received high level training. And it is a means of **individual development for everybody**. One or the other of these aspects may be more important in one country than in another, but they will have their validity".

The definition highlights the following five types of extension education : Substitute education, complementary education, prolongation or extended education, further or enrichment education and individual development for personality rounding off of every person, which are all different forms of continuing education.

### Substitute Education

In the Indian context, the first function relates to making illiterate adults literate. Nearly 50% of the world's population is illiterate and one-third of that is in India. Leadership in India has accepted adult education as a national movement and the Government launched the National Adult Education Programme (NAEP) in 1978, followed by a comprehensive revised programme in 1983 comprising the Adult Education Programme (AEP) with a focus on universalisation of elementary education for those in the age group 6-14 years and the programme of eradication of illiteracy for those in the age group of 15-35 years through a centre based approach. The AEP dealt with literacy, social awareness and functional development through literacy, post-literacy, continuing education and mass programme of functional literacy (MPFL).

Prime Minister Rajiv Gandhi has identified eradication of illiteracy as one of the five missions. The Technology Mission for Eradication of Illiteracy (TMEI) is set up to mobilise social focus for raising the quality of life of the people. Continuing Education under the Literacy Mission will be achieved through Jana Shiksha Nilayam (JSN) or community centres to serve clusters of 4-5 villages with a population of 5,000, through evening classes, library services, short duration training courses, recreational and cultural activities and setting up of communication centres.

Universities and colleges as per the direction of the University Grants Commission will adopt an Area Development Approach wherein total learning needs of the area would be responded through a process of providing multiple inputs and multiple strategies including MPFL and Centre based approach. JSN will also be used as one such strategy. UGC, through the above approach, will provide universities and colleges with an integrated package of programmes including adult education, continuing education, population education, legal literacy and so on.

The contribution of Indian Universities Association of Continuing Education (IUACE) is crucial in promotional and coordinating roles through a series of workshops bringing personnel in the field on a common platform.

### Second Chance Education

The problem of dropouts leading to educational wastage is an immense one, second to that of illiteracy in its intensity. Dropouts reverse to where they were

before and hence in the employment market, they have the same status as that of illiterates who in addition, have missed the regular span of time-frame. Adult education, therefore, provides a second chance and has proved a useful complement to education. Time is not far when it will become an important alternative to the formal school system. The 'Open University' system is a very bold step in this direction. The Central Board of Secondary Education (CBSE) provided an alternative to the formal school for out of school learners, working adults, house wives and others through bridge courses to enable learner aspirants to later on take up secondary level courses through the Open School. Condensed courses is also another such programme of education designed for women by the Central Social Welfare Board.

The SNDT Women's University pioneered in 1974 its 'Open University Programme' providing opportunity to women, who are 21 years of age and above, irrespective of their academic qualifications, to join the University mainstream of formal education after undergoing a specially devised bridge course operated through distance education.

The Indira Gandhi National Open University (IGNOU) is the most recent experiment of open learning through distance education techniques designed to widening the access to education. Some of the other ongoing experiments in this respect are by the Mysore, Madurai Kamaraj and Andhra Pradesh Open Universities. The aim of these programmes, as in the Open University of U.K., is to provide educational opportunities for adults in their own homes and in their own time and thus enable them to further their knowledge leading to formal programmes or credit courses of a non-formal nature.

### Supplementary Education

The third aspect, prolongation or extended education, was given a shape through evening classes, Adult Schools, Shramik Vidyapeeths (Institutions devoted to workers), People's Universities assisting adults in extending the education acquired by them in their youth and thus equipping them to fulfil the multifaceted acquisitions expected of them in the organised and unorganised sectors. The objective here is to consider the worker as a whole man for the different roles demanded of him. This strategy helps in widening horizons, advancing professional competence and training for new skills. Thus it provides supplementary education. This area of extension work has been successfully undertaken by universities and colleges.

### Further Education

Further education or education for enrichment, the fourth factor implies deepening of knowledge and furtherance of education through inservice training courses and updating of professional knowledge and skills. With the strides that knowledge is achieving, this need is increasingly felt and professional institutes of medicine, nursing, library science, home science, management studies, education and such others are engaged in meeting these ever increasing needs of advancing technology as well as the expanding content of professional education through their Continuing Education Cells or Extension Departments. This demand is also met by professional associations, public sector organisations, banks and similar institutions through courses in further education and continuing education.

Linkages within curriculum have been established on various fronts, through involvement of students in field activity, through projects, curricular restructuring and offering training programmes for manpower development.

### Women and Continuing Education

The aim of a learning society should be to make education accessible to every one through a variety of different paths as may be necessary at any age of the aspirant. This is applicable more sharply to women as they, as a group form a disadvantaged section of society and have to face the pressures of dull or multiple roles. Women as a class constitute nearly half the total manpower resources and due to this nature of composition, they are the major sufferers of the ills of illiteracy, ill-health and social injustice. Moreover, women form a substantial segment of the labour force both in rural and urban areas. All the above characteristics and the women's movements of varying kinds that have arisen as a natural consequence of these handicaps have had an inevitable impact on the nature and practice of extension education. This is undoubtedly a pointer to the need for special action in regard to women's programmes. The role of women's universities is particularly crucial in this respect. They should provide leadership to women. They should also work for educating women in a manner that will make women conscious of seizing opportunities to acquire equality in social status. University education must enhance women's capabilities for empowerment, failing which the continuation of the inferior position assigned to women will jeopardise the future of Indian society. The New Education Policy of the Government amply substantiates this.

The SNTD Women's University in this respect, over the years, has organised programmes with different orientation under the continuing education process. The first is the academic orientation which facilitates recipients to receive the degree of the University through the bridge course of its 'Open University Programme'.

Culturally focussed programmes are specifically oriented for women to develop appreciative attitudes towards the performing arts and appreciation of the country's cultural ethos. Socially oriented courses bring about awareness of socio-psychological issues surrounding women even with respect to their legal position in their life cycle.

Self-employment oriented courses have been taken advantage of by a number of women to utilise gainfully their leisure time thus relieving the economic stress on the family. The SNTD University thus provides the type of extension education and community action programmes through its diverse dimensions which do not consider women only at the receiving end but also help in developing their self confidence and self reliance. The various departments of the University are also working as a transferring belt of knowledge by giving the role of providers to women. Further the university has developed models through which women assume the role of change agents.

#### **Programmes Within the System and Outside**

The Indian scene presents a complex panorama of multi-faceted education activities. This covers programmes within the tertiary system which can be classified at three levels namely, at the high professional level, at the middle level and at the grass root level. In addition there are several agencies and organisations outside the educational system offering continuing education programmes may be on a much larger scale. These however are limited to top level training of the highest quality for specialised groups through Government sponsored programmes under different Ministries, national institutes, professional bodies and associations, banks and commercial organisations, service organisations, public sector institutes, Nehru Yuvak Kendras, Institute of Workers Education, Shramik Vidyapeeths and several others.

In a modern society, to meet the fast developing needs, a stronger and closer linkage between institutions within the educational system and outside that system is needed to be built up so as to enable both to share the responsibility to create a learning society. Some of the emerging trends arising out of these efforts refer to development of education preceding economic growth, preparing men and women for a

type of society to the creation of which we are looking forward, efforts in meeting contradictions arising between the products of education and needs of the modern society and most importantly development of women. Both developed and developing countries are at grips with the transition taking place in the changed social order. Margaret Mead's words describe this situation realistically. "No one will live all his life in the world in which he was born and no one will die in the world in which he worked during his maturity". All the scientific and technological developments must be harnessed through the agency of continuing education for the purposes of bridging this gap between the cradle and the coffin.

#### **The Challenge**

The challenge is before us. That challenge is to innovate and offer the last aspect of the definition, the individual development of the recipient without which all the previous formal or non-formal educational offerings will spell a failure. The individual development in a technological age necessarily comprises the two facets of such a development namely, scientific attitude and value orientation. Why is it that the man who walks bouncingly on the surface of the moon walks hesitantly on his planet? This hesitancy may be due to a lack of critical aspects of this development. It is recognised that the implantation both of attitude and values cannot be achieved either by formal lecturing or by correspondence packages and set books of the Open University. It has been proved that scientific literacy and analysis of values can be cognitively offered. However such offering needs to be sublimated into an attitude which crystallises in action. This can only be achieved through different strategies where a teacher possessing such supreme characteristics meets his students in workshops, in symposia, creating case histories and thus projecting components of a developed personality.

Aldous Huxley gives three dimensions of an educated person. The first Verbal, the second 'Symbolic' and the third Non-verbal. The first two can be achieved by continuing education. What is 'Non Verbal' education? Wordsworth gives meaning of Non-Verbal education as

Enough of Science and Arts  
Close up these barren leaves  
Come forth and bring with you a heart  
That watches and receives"

Developed and developing countries have this challenge to meet by structuring strategies for the 'Non-Verbal' education by unique value creating pedagogy. □

# THE INEVITABLE TENSIONS

J.N. Kapur\*

The research workers work under an inevitable tension. The tension is between Pure Research and Applied Research, between Basic Research and Applications-oriented Research, between Academically-Respectable Research and Applicability-Respectable Research, between Curiosity-Driven Research and Market-Driven Research, between Abstract Research and Socially-Relevant Research and so on.

Every research worker is torn between two loyalties, loyalty to academic values and loyalty to society. On the one side, there is beauty, elegance, abstraction, generalisation and depth and on the other side, we have messy situations, short-term solutions and immediate applications. On one side, there are immediate academic rewards and possibilities of practical results in the long run; on the other side there are immediate economic gains and possibilities of basic research in the long run.

All research has its roots ultimately in the physical, economic and social needs of society. After immediate problems are solved, the gains of research are studied at leisure, are systematised, patterns in it are discovered, laws are formulated and academic research follows. This academic research may lead to new unexpected applications and from these unexpected applications, new lines of basic research may start. After this process of alternative applications-oriented and academic research is repeated a number of times, the academic research may be so far removed from real applications, that the possibilities of its applications may become insignificant. However the research problems may become so intellectually fascinating, challenging and absorbing to the research workers that they may henceforth do research for the sake of research only.

At this stage, some persons begin to question the relevance of this research. Some research workers meet the criticism by arguing for the dignity of the human mind, for its intrinsic right to meet intellectual challenges, by the need for intellectual food of the highest kind for mankind, while other research workers justify their efforts by the possibility of distant but possibly remarkable applications of this in-depth research. There are both aggressive and defen-

sive attitudes, but there is unmistakable evidence of tension in the system.

Left to themselves, most research workers tend to gravitate towards academic research because of its intrinsic attraction, academic rewards, publishability and breadth of outlook, though there are some who still feel interested in practical problems. Society and governments therefore, apply economic pressures to push the research workers towards the practical problems. These pressures are applied by giving much larger funds to research laboratories dedicated to solution of practical problems and much less to academic institutes, by giving research grants to those research schemes which claim to be able to give practical results and withholding these from others.

However since the distribution of funds has to be made through academicians, academic research still receives some funds. Nevertheless in this process, some ethical values may be sacrificed. Academicians claim that their research schemes are oriented towards applications in the fields considered important by the fund-giving agencies, while in their hearts they know that the main research will be theoretical and the fall-out for applications will be only marginal. This again leads to tension in the minds of those who submit schemes and those who evaluate them.

Some research workers have a knack of getting on the bandwagon. Whatever be their expertise, they relate it to the fields considered important by the fund-giving agencies and use their influence to get big grants. On the other hand, there are research workers with 'conscience' who do not want to make false claims and who suffer in the process. Thus inevitable tension is there in both cases.

The funding agencies also know that the results claimed will not be obtained, but they are happy that in this way they can apply a gentle pressure which forces the research workers to be more practical. They also know that a stronger pressure may be counter-productive.

In developing countries, this inevitable tension is very pronounced. The political groups always plead for wholly practical and relevant research. They claim that their countries are too poor to afford the luxury

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of fundamental and curiosity-driven research. However research grants administrators know that one cannot have application oriented research without basic research, so they play a tight-rope game of pleasing both the political and the academic groups. They try to moderate the attitudes of both the politicians and the academicians. They try to work out compromises both in letter and spirit.

In science and technology research work starts from both ends and may converge somewhere in the middle. The practical problems of industry and technology require immediate solutions. As such scientists and technologists in industry survey the whole field of relevant science and technology and see if solutions to these or similar problems are already available and then try to adapt these solutions to problems at hand. They sometimes find gaps in knowledge which have to be filled in by fundamental research under great pressure. Once the fundamental research helps in solving the immediate problem the interest of scientists may decline since in the meantime they may have got other industrial problems to solve. However some of them and some academic scientists may go deeper into fundamental research and work on these for possible future benefits or for the sake of satisfying their own innate curiosity.

On the other hand research may start for purely intellectual reasons with no immediate possibility of applications. Over a time more and more practical applications may be discovered so much so that at later stages, all research in a field may be supported by industry alone.

In social sciences also research may start at both ends. Some researchers study the existing practices, rationalise these, try to understand the reasons for their having been adopted, find regularity and patterns and discover laws of social behaviour in this way. On the other hand, there are others who formulate plausible axioms, deduce logical conclusions, compare these with what is actually observed and thus arrive at laws of social behaviour.

There is nevertheless tension between those who believe in going from data to the laws and those who want to go from laws to the data. However both approaches are essential for the progress of research.

The tension is inevitable everywhere, but it becomes very pronounced in disciplines which are highly mathematical. In mathematics itself there are pure or abstract mathematicians who postulate consistent axiom systems and then deduce beautiful results from

them. These axioms may be about abstract systems which may have apparently nothing to do with real-life systems. Painstaking research may however be able to demonstrate that these abstract systems are related to real-life systems through a dozen or more successions of generalisations and abstractions. There are others who work on systems which are only four or five generations of abstractions away from physical reality and there are still others who are ready to work at the first level of abstraction.

Thus we may, at any time, have a dozen groups working at a dozen levels of abstraction. The tensions arise when those who work at the deepest level of abstraction i.e. at farthest distances from physical reality consider themselves as the only true Brahmins. Those who work on applications sometimes want to get respectability by using the sophisticated language of abstraction even when it is not needed. In applications, it should be the insight one gets rather than the language one uses, which should matter.

In other subjects the number of levels of abstraction is smaller and accordingly the tensions may be consequently less, but the tensions are nevertheless there.

Thus in operations research we have theoreticians and practitioners. The theoreticians are found mostly in universities and enjoy a high status. The practitioners are found in industry and enjoy a relatively lower status because in industry workers are not expected to make decisions, but can only help those who make decisions. In economics, some economists get a high status because of their work in mathematical economics but they later migrate to positions where they deal with large scale real economic problems, with their status intact. With the advent of computers, theoretical engineers have risen in status relative to field engineers.

In every field, there is a tension between theoreticians and practitioners. Sometimes the scales are tilted against the theoreticians because a majority of workers in the field are weak in theory and they consider all which they do not know as unimportant. They may use only low level theory and may consider sophisticated theory as a luxury which can be dispensed with.

To be theoretically sound, one has to work hard continuously and remain up-to-date. To be practically sound, one needs experience and commonsense.

*(Continued on page 10)*

# UNIVERSITY EDUCATION IN BIHAR

A. K. Ghosh\*

Recently one Mrs. Chinta Devi, Lecturer of Kanti Indira Mahila Mahavidyalaya, Patna, poisoned herself to death along with her two children for want of money to maintain her family. Many Chinta Devis of various Colleges in Bihar are on the verge of getting on the same boat. The catastrophe is the by-product of the new concept propounded by the State Government under which anybody is allowed to open a college without any financial assistance from the Government.

## Selling Education

The race for setting up new colleges in Bihar by some private agencies has escalated their number to as many as 187 named as "bittiyeh bhar rahit" colleges (Colleges without financial aid). Some of them give a token salary to their teachers but majority of them do not pay anything. These colleges have been opened with donations from those desirous of a teaching job. The amount ranges from Rs. 10,000 to Rs. 20,000. Such teachers have to pay the donation at the time of creation of posts for them, at the time of appointment, at the time of Government announcement to convert the institution into constituent unit and also at the time of their actual take over by the Government. These colleges have been flourishing keeping the teachers in fools' paradise.

Starting a new college is supposed to be the best business these days. This industry is much more flourishing than any other industry. The exodus to towns and cities have intensified the need for more educational institutions than are available and unscrupulous people are taking advantage of this situation. They start a college in some hired house and then advertise in papers for teaching and non-teaching staff. After receipt of a large number of applications from educated unemployed persons, the bargaining starts. Even before the appointment letters are issued to the applicants for the job of lecturers, they are asked to work for some months and years on honorary basis, i.e., without any payment and after some time they are paid a very petty amount or Rs. 150 to Rs. 200 per month but they are required to sign on payment registers indicating full payment of a lecturer.

In such colleges, generally undeserving Principals are employed so that they can toe the line of the

person who has established the institution. Through them are got done all sorts of wrong things for the benefit of the institution owner. Teachers and heads have to work at the mercy of the founder of these institutions and, hence, generally unprincipled persons are able to retain their service and undergo exploitation and principled persons are thrown out in course of time if at all they happen to enter such an institution.

The founder of the institution in the meantime manipulates the people at the helm of affairs in the University/Government to obtain grant/subsidy for the institution and generally he is successful in doing so. After the grant/subsidy of Government/University is obtained the founder gets the real benefit because only a part of it is actually utilised and a substantial portion of the fund goes to the benefit of the founder although on paper the entire amount is shown used for the purpose it was intended. Such institutions in course of time due to political and other pressures are taken over by the Government and then only the services of all the lecturers are regularised and they start enjoying the fruit of their donation for the whole life without at the same time contributing anything to the cause of higher education. During the eighties nearly 150 private colleges have been taken over by the Government/University in the State of Bihar only.

This is the only route left now to enter the university service in Bihar. The old practice of recruiting lecturers through the Public Service Commission or University Service Commission has been rendered obsolete for the last several years closing thereby the door for the brilliant people to enter the profession. Yet the provision of inter and intra university transfer of teachers is there to push these politically sound and economically rich but academically poor teachers to get their services transferred from their native mossy constituent colleges to some premier institutions of the same or different university. The fate of the universities with such a weak backbone can be well imagined.

Also, during the last few years about a dozen of engineering colleges have been started in the private sector in the State despite the fact that thousands of engineering graduates are rotting and sitting idle for want of employment. These institutions have charged fifteen to thirty thousand rupees from each candidate as capitation fee (another name of donation) without ascertaining the merit of the candidates. To think of

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the quality of the technocrats coming out of such institutions'. The students who have paid such a big amount cannot think of remaining honest after they get any employment on completion of their academic career. Thus the quality and integrity of the majority of the product of such institutions is bound to be affected and naturally their worth is questionable

#### Ph D.—A Masala or a Must

The mechanical criterion for the time bound promotion of a lecturer to the post of Reader has made the Ph D degree too cheap as this degree guarantees quick promotional avenues. Prior to such time bound promotional scheme teachers used to do research work for their academic interest. But of late they have no option but write Ph D thesis only to secure promotion. The rate of Ph D production is touching sky high and it would not be unfair to say that in the name of research leading to Ph D degree there is loss of teaching and wastage of money without any improvement in the quality of teaching. Some teachers even manage to go on leave with full pay plus extra amount as teacher fellowship for two or more years and in return their contribution to the cause of higher education is nothing. In the easiest examination called the Ph D, nobody fails. This is an art of manipulation and to get this degree awarded what one has to do is to please the supervisor and the concerned University head as it is they who in connivance with each other manage the appointment of some pet examiners who are more concerned with their own T.A and remuneration than the quality of the thesis, just recommend the candidate for the award of Ph D degree.

True, there are some dedicated and efficient teachers who cannot let themselves allow to hire so called pseudo Ph D degrees and hence they are virtually the worst sufferers. Their efficiency declines when they find to their dismay that they are superseded by their junior colleagues holding such Ph D degree.

#### Unfair Examination

Now coming to the question of maintenance of arts, science and commerce Colleges in the private sector. There is invariably shortage of funds since their inception due to many reasons including misuse. There is lack of adequate and efficient teachers and proper arrangements for practical training by way of laboratories/workshops. As a matter of fact, the students who have not been properly taught are compelled to resort to unfair means to pass the examination. On the other hand the teachers while working in an ill-equipped college naturally have inclination to im-

prove the result of their institution by not preventing their students from doing so. This is the main cause of the present day malady of use of unfair means in the examination.

In large number of cases, private Institutions are started not only with the intention of earning but with the aim of serving the cause of caste or community. The very inception of such institutions is based on caste or community feeling to perpetuate and promote casteism and communalism.

What to speak of the private colleges, practical classes do not receive proper attention in constituent colleges too. Due to financial burden, the universities are not able to meet the contingency expenses of the laboratories. The financial grant which the universities receive from the state Government is meagre in comparison to their actual requirement. Much of the amount is spent as T.A or C.A of the observers, flying squads and centralised evaluation of answer books. There are now no demonstrators to manage the laboratories as they have been promoted as lecturers after completing M Sc.

This serves as another reason for the neglect of practical classes. The directives of the UGC allowed the appointment of Lab Assistants for management of laboratories but lack of funds restrains the universities from doing so. Most of the promotee lecturers who have just managed to pass the M Sc examination with high marks in the practical papers, of course, are seen cutting a sorry figure in the class. In spite of all this the students who hardly work in the practical classes come out with flying colours in the examination.

#### Evaluation of Papers—a Farce

A report in the Hindustan Times Daily, Patna, Dated 7.12.87 reads: 'The centralised evaluation of answer books of Magadh University has turned into a big farce with proliferation of corruption and nepotism. The sanctity of centralised evaluation has reached its lowest ebb as no examiner makes an effort to go through the entire answer books and marks are awarded virtually blindly pulling strings and canvassing is the only way left to secure high marks'.

#### Experiments with Education in Retrospect

Ironically, over the last decade a number of steps have been taken for the upliftment of the economic and social status of the teachers but measures to promote the basic needs of the colleges have always been ignored. Needless to say, experiments after experiments have been carried out to enhance the academic standards in the State but without any tangible result. Actually most of the ills that afflict the universities

today owe their genesis to the wrong decisions of the Government taken generally with a vested interest. The resolution of "passing without English" framed by the coalition Government in 1967 was clearly reflective of Govt.'s weakness for the students who had helped them in realising power as a result of which the examination and degrees lost their value. Credit goes to the succeeding Government led by late Kedar Pandey who took some right steps to curb the malpractices prevalent in the universities by appointing members of the IAS with powers of both the senate and the syndicate vested in them for keeping the universities away from political interference. But this period could not continue for long. In the name of autonomy of the university the old system was revived. Dr. Jagannath Mishra's ministry, in a bid to have a full grip over the universities, took certain decisions that told upon the entire atmosphere of higher education. The net result is very much before us.

### Remedies

It is imperative that the Government must put a complete ban on opening of educational institutions by the individuals. The Government at the same time should make arrangements for setting up new colleges according to the needs of the area. The colleges already started and being run by individuals should not be given recognition or encouragement by the Government. The Government should also be cautious in offering higher posts such as those of Vice-

Chancellor, Registrar, etc. to the teaching staff of such private institutions taken over by the Government in the recent past so as to check the inferior quality of education administration.

Teaching in the universities cannot improve unless the sincere and devoted teachers are rewarded and promotional avenues are created for them. The appointment of teachers should be made on the basis of written and oral tests. Ph.D. examinations should be made strict so that pseudo Ph.D. degree is not encouraged. Research publications in standard research journals should be given due weightage. Minor research projects should be awarded to the deserving teachers and funds for such projects should be raised and adequate facilities provided. Adequate laboratory grants should be released for the improvement of science faculty.

No class should be made to suffer on account of examinations which take a considerable period of the teaching session. Private tutorial classes should be revived. The university should maintain progress report of the colleges regarding teaching. Postgraduate teaching should be planned and managed reasonably. Unwanted and indiscriminate growth of Postgraduate teaching centres should be curbed. It is high time proper measures are adopted and all out efforts made for the uplift of poor colleges already upgraded to constituent status to maintain standards of the university education in the State.

## THE INEVITABLE TENSIONS

*(Continued from page 7)*

A similar tension arises in the field of education. We have tension between Education for the Classes and Education for the Masses, Academic Education and Vocational Education, Liberal Education and Technical Education, Education for the Mind and Education for the Hand and so on. There is a constant pressure that education should be relevant to the needs of students, teachers and society. On the other hand there is also the school that believes that education is for training the mind, since a trained mind can learn any discipline it wants. Too much emphasis on relevance in education can make it irrelevant later.

The tensions in the academic community are often fed by vested interests of individuals. We need both theoreticians and practitioners, we need both basic and applied research, we need abstract thinkers and down-to-earth problem solvers. Everyone has a role to play and different persons have different roles to play.

There should be no caste distinctions on the basis of the positions individuals occupy in the spectrum between extreme concentration on theory and extreme concentration on practice.

There should be mutual appreciation instead of tension. While playing our roles, we should develop appreciation for the roles played by others. This will help all.

The tensions in research and education are similar to the conflicts between different religions. Just as different religions have the same goal of divinity of man, different groups placing different emphasis on different aspects of Education and Research have the same goal of Search for Truth has many aspects and different researchers explore different aspects. Co-operation between them is essential for a grand vision of the Whole Truth. □

# Agenda for Agricultural Research

Dr. Raja J. Chelliah, Member, Planning Commission lauded agricultural research to bridge the gap between the proven potential and the actual yields on the farm through adaptive research to suit varying agro-climatic and socio-economic conditions. Dr. Chelliah was delivering the Convocation Address at the 22nd convocation of the University of Agricultural Sciences, Bangalore. He discussed the priorities in agricultural research and observed that "research for biological fixation of nitrogen and to increase the fertiliser use efficiency and evolving varieties incorporating multiple resistance against pests and diseases and adverse environmental conditions must be high on the agenda. Other priority areas in agricultural research, I may mention, are : (i) evolving suitable dryland technology for rainfed areas, (ii) varietal breakthrough in pulses and oilseeds, (iii) conservation and planned exploitation of germ plasma resources of plants, animals and fisheries to broaden the genetic base for improvements, (iv) strengthening of activities in respect of biotechnology; and (v) greater research support to agro-meteorology." Excerpts.

Although the contribution of agriculture to the gross domestic product has declined from about 59 per cent in the early fifties to about one third in recent years, it remains the crucial sector in our economy in the overall perspective of development. Agriculture gives employment and hence livelihood to the major proportion of the labour force and supplies the most important and basic requirement

of food and raw materials for industry and since at the same time the agricultural population constitutes the most important segment of the market for industrial products, it is clear that the overall rate of growth of the economy is limited by the growth of agriculture. To some extent the growth of exports can substitute for the growth of agriculture in terms of making possible a higher rate of

## Convocation

of the population, namely food. Hence agriculture will continue to dominate the perspective of the development of the Indian economy from the view point of food security as well as in terms of that sector's unique association with the problems of employment, income generation and poverty alleviation.

Since agriculture is the supplier

of food and raw materials for industry and since at the same time the agricultural population constitutes the most important segment of the market for industrial products, it is clear that the overall rate of growth of the economy is limited by the growth of agriculture. To some extent the growth of exports can substitute for the growth of agriculture in terms of making possible a higher rate of

medium or long-term perspective.

Thus, while the building up of a modern, progressive industrial structure must be one of the main goals of planning in India, equal attention has to be paid to the growth of the agricultural economy and to raising its levels of efficiency and productivity from the angles of (a) food security (b) employment and poverty alleviation; and (c) making possible attainment of a higher growth rate for the economy as a whole.

"Food security" has been defined as "access by all people at all times to enough food for an active and healthy life". Access to enough food for all people depends on two conditions: (a) sufficiency of supply/production of food in relation to the growing population, and (b) a certain pattern of income distribution to enable all the people to command enough purchasing power to have access to food necessary for an active and healthy life.

At the beginning of this century (in 1901) the Indian population (i.e. population of the present Indian territory) was 238 million and it increased at a slow rate till 1951. The reasons for slow growth were the frequently occurring famines and epidemics. By 1951 the population had increased to a level of 361 million. The average annual growth rate for the half century (1909-1951) works out to 0.83 per cent. The impact of economic development on the growth rate of population was not fully perceived at the beginning of the era of planned development. At the time of the formulation of the First Plan, it was assumed that the population would continue to grow at the annual growth rate of 1.25 per cent which was the growth observed in the forties.

But in actual experience, there was a sharp reduction in death rates leading to higher expectancy of life on the one hand, and higher and progressively increasing rate of growth of population on the other. The life expectancy increased from 32.1 years in 1950-51 to 54.4 years in 1980-81 and is estimated to have gone up to 56.5 years by 1984-85. The realised growth rate of population over the period 1951 to 1985 has been about 2.03 per cent per annum. The latter decades have shown even a higher growth rate, going up to 2.25 per cent during 1971-81. This was in spite of the fact that during 1951-1971, there was an almost constant fertility rate, and during the decade 1971-81, there was a decline both in fertility and in mortality. However, as yet there are no certain indications of decline in the growth rate of population, if the present trends continue the population may well cross the one billion mark by the turn of the century. This population by the turn of the century will also consist of a higher proportion of persons beyond 15 years of age (about 68 per cent by the year 2000 as against about 60 per cent in 1980) and hence would also consist of larger proportion of labour force.

The production of foodgrains is taken to be a convenient indicator of the food perspective mainly because statistics on production of foodgrains are more easily available than on the other items of food, and foodgrains constitute the bulk of food consumption, specially in a country like India. However, it would be useful to consider at the outset as to how large is the bulk of foodgrains in the total food consumption. As per the 32nd and the 38th rounds of the National Sample Survey, expenditure on foodgrains in rural areas constituted 58.1 per cent of total ex-

penditure on food in 1977-78, and their proportion declined to 55.3 per cent in 1983-84 for the entire rural population. However, for the population group just around the poverty line in rural areas, this proportion was about 63.5 per cent for both the rounds. For urban areas expenditure on foodgrains constituted 40.6 per cent of total food in 1977-78 and 38.8 per cent of total food in 1983-84. There is a clear evidence of diversification the food basket and of increasing share of meat, fish, egg, vegetables and fruits. The share of this group of food items in the total expenditure on food increased from 11.7 per cent in 1977-78 to 13.9 per cent in 1983-84 for the population in rural areas. Even for the population group around the poverty line in rural areas, there is a perceptible increase in the share of this group of food items from 11.3 per cent in 1977-78 to 12.3 per cent in 1983-84. In urban areas the expenditure on these items increased from 16.4 per cent of food items to 18.1 per cent over the same period. This has to be taken note of while considering the per capita availability or production of foodgrains in relation to the food problem. Also, the observed pattern of consumption of the different expenditure groups indicates the composition of the increase in food output that is to be brought about.

In 1950-51, the foodgrain output was about 51 million tonnes which reached 70 million tonnes in 1954, and since then the output has shown an increasing trend barring the fluctuation caused by weather conditions. A peak of 152 million tonnes was reached in 1984. Due to accelerated rate of growth of population particularly during the decade 1971-81 production of foodgrains in per

capita terms has not shown a significantly increasing trend. However, during this period there has been a growth in the production of fruits, vegetables, fish and the products of animal husbandry, which is also reflected in the diversification of the food basket.

The main Indian achievement on the food front, so far, can be described as (i) elimination of the need for food imports, (ii) maintenance of adequate stocks to stabilise prices and immunise production against the cob-web cycles, and (iii) achieving a pace of growth in food production which is more or less consistent with the growth of the rest of the economy. However, since about 37 per cent of the population (i.e., population below poverty line) is still undernourished, the total absolute requirements of food to feed the entire population at a level above the minimum nutritional requirements are still quite large. A calculation, taking into account the population growth and its changing age-structure, projected increase in per capita income and the expenditure elasticities for foodgrains, and keeping the target of feeding at least 95 per cent of people at a level above the minimum nutritional requirements, projects the foodgrains requirements at over 240 million tonnes for the year 2000.

Land, water and environment constitute the basic resources for agriculture. Out of the total geographical area of 329 million hectares in India, the cultivable area is estimated at about 186 million hectares, while the net sown area is 143 million hectares. The difference between the net sown area and the cultivable area consists of marginal lands. However, the net sown area which was 119 million hectares in 1950-51 increased by about 12 per cent

during the decade 1950-51 to 1960-61 and by about another six per cent during the next decade (1960-61 to 1970-71), and thereafter it has remained more or less constant, fluctuating marginally around 141 million hectares. There is little scope of increasing it further. In fact, the growing need for housing, expanding industrialisation and spread of infrastructure may further encroach upon some of the cultivated lands. And since most of the activities and habitation get concentrated upon lands where water is available, the encroachment for such purposes upon better agricultural lands is more than upon the waste lands. However, a significant source of augmentation of cultivated land has been irrigation. Net irrigated area expanded from about 21 million hectares in 1950-51 to about 40 million hectares in 1982-83 and gross irrigated area increased from about 23 million hectares to over 52 million hectares over the same period. As a result, the gross cropped area increased from 132 million hectares in 1950-51 to 173 million hectares in 1982-83 and 175 million hectares in 1984-85. The cropping intensity has gone up from 111 in 1950-51 to 122 in 1984-85.

Water is thus the key resource for its direct contribution to productivity and for its contribution to multiple cropping, thereby augmenting the given land resource. The spread of irrigation has also helped in stabilising agriculture against the vagaries of the monsoon. The created irrigation potential was about 68 million hectares in 1984-85, which, at the end of the Seventh Plan, is targeted to reach about 81 million hectares. On the basis of existing technology and costs of water diversion, the ultimate irrigation potential is estimated, somewhat

conservatively, to be 113.5 million hectares. However, the technology improves over time and relative costs and benefits change in the perspective of changing relative scarcities and more optimal uses of scarce resources. In such a perspective, a higher estimate of the ultimate irrigation potential which takes into account the possibilities of inter-basin transfers of water, is about 148 million hectares. Even if this potential were to be realised, a significant proportion of land would remain without irrigation. And yet this scarce resource, water, is being used much below the optimal or feasible efficiency levels. There is a yawning gap between creation of potential and its utilisation. Moreover, in most of the irrigation systems the overall average water use efficiency in terms of water used by the plants in relation to water released at the head of the system, ranges between 25 per cent and 30 per cent at present. There is a potential of raising this efficiency to bring it in the range of 50 to 60 per cent, which would amount to doubling the availability of usable water even within the existing systems. This can be achieved partly through additional investments in lining, control systems and local storages, and partly through improved operation of the system and better irrigation and land management practices.

The Command Area Development Programme was initiated in the Fifth Plan with a view to optimising agricultural production through better management of land and water use in the command areas of irrigation projects. The objectives are sought to be achieved through modernisation and efficient operation of irrigation systems, provision of adequate drainage, construction and lining

of field channels, levelling and land shaping, conjunctive use of surface and ground water and reinforcement of extension services and supply of inputs to the farmers. Much remains to be done in fulfilling the objectives of the Programme.

Many State Governments have not paid sufficient attention, and at sufficiently high levels, to the question of water management and to the task of getting the maximum out of the irrigation potential already created. There are on the one hand financial lapses or shall we call it, inefficiency (cost overrun, leakages and kickbacks, inadequate recoveries from beneficiaries, etc.). Apart from that, we encounter in several States, technical inefficiency in terms of non-utilisation of high portion of potential, wastage of water, water logging, etc. Irrigation and water management must be placed in the hands of the best officers the State has and must receive the close and personal attention of the Chief Minister in addition of course to the supervision of the Minister concerned.

The importance of environment being a resource is being increasingly realised though still we cannot subject it to the type of measurement which is possible in the case of land or water. While macro-climatic impact of environment cannot be perceived even over a period of a few centuries, some of the consequences are easily seen and can be correlated to environmental degradation. For example, based on the record and analysis of flows in the Narmada for about 80 years, it is reported that the intensity of floods in the river significantly increased since the forties, and some of the biggest floods have been experienced in the later period. Heavy

deforestation of the Narmada basins started during Second World War period, and since then the density of forests has been decreasing. This affects water retention capacity of the soil and run-off to the river increases. This run-off also erodes the soil. A similar situation is said to exist in several other basins as well. There are other types of environmental erosion, the consequences of which are seen in much shorter periods. Examples are the problems of water logging and soil salinity caused by overuse of irrigation water in soils which are not easily drainable. Tawi basin in Madhya Pradesh is an outstanding example of this, but the problem is more widespread than is realised particularly in the paddy and sugarcane areas in peninsular India and parts of Haryana and Punjab as well. Widespread irrigation also raises the level of humidity in the atmosphere and increases the incidence of pests and diseases on the crops. It is not that there are no preventive and corrective measures to these problems, but in the first flush of development these problems get ignored till the corrective measures become more difficult. Short term private gains also override the consideration of long term social costs, and hence, the need to guide private actions in the perspective of long term social objectives.

Technology plays a vital role in "augmenting" the given national resources. Even the perception of given resources depends largely on the state of technology. The assessment of water potential, for example, will go up. If economically feasible technology is available to connect the northern river systems with the peninsular systems. But, as is well known, ~~even~~ more important in recent yrs, has been the role of techno-

logy in increasing yields through the introduction of new varieties particularly in the case of food production. The evolution of high yielding variety of wheat, adaptable to Indian agricultural environment marked the onset of the green revolution. Since then improved varieties have been evolved in respect of many other crops, and remarkable increases in yields have been observed. The all-India average yield of wheat has increased more than 2.8 times over the period 1950-51 to 1983-84 and that of rice more than twice over the same period. The yield of all foodgrains taken together also increased more than twice. These are only all-India averages which are still heavily weighted in favour of traditional agriculture. The green revolution has adequately covered only the north-western region and some pockets in other parts of the country. It has been estimated that such developed areas accounting for less than 15 per cent of the area under foodgrains contributed as much as 56 per cent of the increase in food production in the post-green revolution period. The area under high yielding was only 56 million hectares in 1984-85. Thus, the full potential of the new technology is far from being realised.

Yields have been observed, under field conditions, to reach as much as 4½ to 5 tonnes for rice and wheat on an average for a few pockets. The adoption of new technology depends very much on assured and timely water supply and a package of other inputs the most significant of which is fertiliser. Fertiliser application increased from about half a kg per hectare in 1950-51 to more than 46 kg/hectare in 1984-85 on an all-India average basis. Of considerable promise in the field of agricultural research is the effort to bridge the

gap between the proven potential and the actual yields on the farm through adaptive research to suit the varying agro-climatic and socio-economic conditions. Research for biological fixation of nitrogen and to increase the fertiliser use efficiency and evolving varieties incorporating multiple resistance against pests and diseases and adverse environmental conditions must be high on the agenda. Other priority areas in agricultural research, I may mention, are: (i) evolving suitable dryland technology for rainfed areas, (ii) varietal breakthrough in pulses and oilseeds, (iii) conservation and planned exploitation of germplasm resources of plants, animals and fisheries to broaden the genetic base for improvements, (iv) strengthening of activities in respect of biotechnology, and (v) greater research support to agro-meteorology.

The importance of organising basic research programmes in the field of bio-technology as applied to agriculture and allied sectors needs hardly be emphasised in view of the need for breaking yield barriers in the major food crops, reducing dependence on non-renewable sources of energy and developing resistance to pests and diseases. This field of research has received considerable impetus with the establishment of the National Bio-technology Board and the development of short-term and long-term programmes of research. This field has immeasurable potential.

Yet any other aspect of resource management and policies not only as a means of raising the productivity of land but also as a principal determinant of class relations and social justice has been the emphasis on land reforms from the very beginning. The main com-



ponents of land reform policy have been (i) abolition of intermediary tenures, (ii) tenancy reforms comprising regulation of rent, security of tenure and conferment of ownership rights on tenants, (iii) ceiling on land holdings and distribution of surplus land, (iv) consolidation of holdings, and (v) compilation and updating of land records. The abolition in the 1950's of intermediary tenures like zamindars, jagirdars, inams, etc., which prevailed in nearly 40 per cent of the area of the country was a major achievement. Consolidation of holdings has been successfully completed in some of the States and the consolidated area at the end of the Sixth Plan was about 52 million hectares i.e. about 1/3rd of the net cropped area. In irrigated commands consolidation of holdings facilitates efficient and economical layout of field channels and thus improves the efficiency of water use. In other areas consolidation encourages private investment in land. In Eastern UP particularly it was after consolidation that farmers made investments in private tube-wells on a large scale and this became the triggering point of a chain of developments which have been noted in the last 6-7 years.

Agricultural price policy in conjunction with technological development has played an important role in India in raising production and stabilising prices. It has aided the adoption of high yielding varieties and enabled the farmers to go in for increased use of fertilisers. Price policy decisions are currently announced in respect of nineteen commodities, ten of which are commercial crops and the rest are food crops. Paddy, selected coarse cereals and wheat are covered under procurement prices and other crops are covered

under the minimum support prices. Regular prices policy announcements have been initiated only after mid-seventies. In announcing these prices the Commission on Agricultural Costs and Prices has been taking into account not only a comprehensive review of the production and price trends of the particular crop but also a number of other important and related factors. In future the agricultural price policy needs to be increasingly concerned with the maintenance of a scale of appropriate relative prices of crops so that the supplies of different commodities are brought in line with the respective demands. Even more challenging is the task to bring about a cropping pattern which is optimal from the point of view of a longer perspective on scarce resources like water and environment. Returns to water in crops like paddy and sugarcane are relatively much lower and their long term impact on soil salinity and water logging is highly adverse particularly in heavy soil areas. One has to think in terms of alternative crops and economic options to produce or buy. This of course is not a task to be handled by prices alone but technological development also has to play a crucial role.

The green revolution and massive investment in irrigation and other infrastructure has raised land productivity significantly but labour productivity has not grown at an appreciable rate. In order to keep tolerable parity in incomes between those engaged in agriculture and those working in the non-agricultural sectors, heavy doses of subsidies are given to the agricultural sector in the form of subsidised input and irrigation. Also the price support system for major crops has been evolved to achieve this objective as well to minimise

the cob-web type of fluctuations in agricultural production. This imposes severe strain on the public exchequer. In the future, labour productivity in agriculture must be increased so as to keep subsidies within reasonable limits.

However, with the increasing pressure of population on land, the average size of the operational holding is diminishing. This fact and the non-withdrawal of labour from agriculture in relative terms (i.e. reduction in terms of percentage of total labour force) serve to hinder the adoption of more efficient techniques and to reduce the relative level of per capita income in the agricultural sector. Obviously for the fast growth of agriculture and the alleviation of poverty in rural areas, the secondary and tertiary sectors must absorb an increasing proportion of the labour force. Hence the accent on industrialisation and the growth in small industry. In the years to come if we have a choice, we must aim to produce and export goods of light industries and obtain products of more capital intensive (non-strategic) industries from abroad. Also we can see that the fast growth of industry is essential for the development of agriculture and the improvement in the living standards of the population.

At this point I would like to digress a bit to say that those who have benefited from the substantial and expensive programmes of agricultural and irrigation development, price support policies and rural electrification, particularly the better off sections of the agricultural population, must be willing to contribute their bit to finance further development. It is idle to imagine that development can be had as a free good. Industry cannot be milked beyond a point for subsidising agriculture. And

Government has to meet many essential demands on its resources. Agricultural growth will require increasing amounts of ploughback of the profits of agriculture itself.

I may summarise what I have dwelt upon at some length. In the context of the development perspective of the nation agricultural production in general and production of food in particular need to be enhanced continuously in spite of severe constraints on land and water resources. Land productivity has been increasing, thanks to new bio-chemical technology, but at the same time the cost in terms of energy, water and chemicals has

also been increasing. It may not be enough to take care of the productivity of land. Returns per worker engaged in agriculture too have to increase to compare with returns in the non-agricultural sectors, otherwise agriculture will have to be perpetually subsidised impairing the potentials of investment in agriculture and other sectors of the economy.

Although there are many serious problems, we take an optimistic view of the future. In the early sixties when most of the Agricultural Universities were set up in the country, our situation was much worse and resources, even for research and development,

much poorer than what we have today. These institutions have justified their existence by bringing about a break-through in agricultural technology. Many of our research institutions have already taken up the frontier areas, particularly bio-technology in the context of agriculture of the future. There is much more consciousness about preservation of environment, conservation of soil and efficient management of water resources. I hope that the Agricultural Universities will take up work on agro-institutions and agri-industries as important disciplines in addition to agro-economics which they already have. □

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## MINISTRY OF DEFENCE

### Defence Research & Development Organisation (DRDO)

#### CORRIGENDUM

Reference DAVP Advt. No. 88 144 inviting applications for various fellowship courses in DRDO appeared in these columns on 13-6-1988

For	Vacancy	
"2. Integrated Mechanical Engg. Fellowship Course	30	1'R-23 SC-05 ST--02..
Read		
"2. Integrated Mechanical Engg. Fellowship Course	10	UR-08 SC-01 ST-01"

2. Under admissions criteria and eligibility conditions, following amendments are made in respect of:

#### Integrated Mechanical Engg. Fellowship Course :

##### For

"After initial training phase fellows would be specialising in Gas Turbine/Armament/Automobile/Structures/Robotics, etc. 10 Fellowships are earmarked for Gas Turbine Technology and 20 for other specialisations".

##### Read

"After initial training phase, fellows would be specialising in Gas Turbine Technology."

3. Other terms and conditions remain same.

davp 88/192

## Dr. Richard Holmes Visits IGNOU

Dr. Richard N. Holmes, Pro-Vice-Chancellor, Open University, UK recently visited Indira Gandhi National Open University (IGNOU) and the State Open Universities in Hyderabad and Kota. His visit was a part of the assistance IGNOU receives from the Overseas Development Administration (ODA) of UK.

During the course of his 9-day visit Dr. Holmes had detailed discussions with Prof. G. Ram Reddy, Vice-Chancellor and Prof. B. S. Sharma, Pro-Vice-Chancellor of IGNOU. The discussions centred round the adequacy and relevance of the existing assistance the UK Open University provides to its Indian counterpart. He also discussed further collaborations the two universities could have in future, especially in the light of the proposed Commonwealth Network. Dr. Holmes was greatly impressed by the speed with which IGNOU has prepared its courses. He opined that soon IGNOU would become, probably, the largest Open University in the world.

Dr. Holmes also had discussions with Prof. Shakti R. Ahmed, Director, School of Sciences, Prof. S.C. Goel and other members of the Faculty of Life Sciences of the University. The discussions focussed on the development of self-instructional print material in Life Sciences as well as the organisation of practical component through the distance education mode, which is being tried out for the first time in India at IGNOU. Dr. Holmes took special interest in understanding the Regional Services of IGNOU and had a meeting with Dr. S. N. Chaturvedi, Director, Regional Services Division.

Dr. Holmes also visited the

Andhra Pradesh Open University, Hyderabad and the Kota Open University, Kota, to understand the progress of these universities as well as the relationship these universities have with IGNOU.

### Fellowships & Visitorships in USA

The University Grants Commission (UGC) has asked the Universities and their affiliated colleges to sponsor teachers for some fellowships and visitorships for post-doctoral research work at the universities and the other institutions in the United States.

Teachers with a minimum of 10 years' teaching experience and published research work are eligible for these fellowships and visitorships. The fellowship will be for a period of one academic year (6-10 months), while the visitorship will be for a short period (2-3 months). The U.G.C. will provide international air-fare from India to U.S.A. and back. In addition, the U.S. authorities will provide allowance for maintenance, books and study related travel in that country.

The fellowships/visitorships are for fundamental studies in frontier areas in Physics, Chemistry, Mathematics, Life Sciences, Earth Sciences and Bio-Technology, Laser Technology, Marine Resources Development, Computer Science and Technology, Semiconductor Technology, Micro-Processors Applications and Micro-Electronics, Communication Technology, Educational Technology and Mass Media, Renewable Energy Studies, Environmental Sciences and Technology, Urban Development and Planning,

Transport Studies and Social and Economic History (including Histiography), Science-Technology and Society, Comparative Literature, Literature and Society, Performing Arts, International Economic Cooperation, Money and Finance, Economics of Energy, Policy Sciences and Comparative Ethnography, Education, Planning and Management, Philosophy of Sciences, Social and Political Philosophy.

Interested teachers may contact their own Universities. The nominations should reach the University Grants Commission latest by 31st July, 1988.

### Project Methods of Teaching

A workshop on "Project Methods of Teaching" was recently conducted by Curriculum and Educational Media Development Centre of the Anna University. The objective of the workshop was to outline a project work on the production and development of a small centre lathe using the standard machine tools and the task was to be performed to meet the industrial standards in the areas of Mechanical, Civil, Electrical and Electronics Engineering respectively.

The resource persons for the workshop came from SPIC, TTTI, IIT and from Anna University itself. The participants of the workshop were from among the Lecturers/Assistant Professors of the constituent units of Anna University, namely, College of Engineering, Guindy, Madras Institute of Technology and Alagappa College of Technology who are in-charge of Projects/Workshops in the various departments.

## **OUAT Organises State Level Training Programmes**

The State level training programme in Rice Production Technology, sponsored by the Ministry of Agriculture, Govt. of India was recently organised in the Extension Education Directorate of the Orissa University of Agriculture & Technology for the subject matter specialists of the State Deptt. of Agriculture, Orissa.

The University also organised a four-day training programme in Mushroom production technology in the College of Agriculture, Bhubaneswar in which 33 persons from different voluntary organisations of Orissa participated.

## **Continuing Education in Computer Applications**

The Department of Electronics, Government of India, has approved a Continuing Education Programme in Computer Applications to be sponsored by Indian Society for Technical Education (ISTE).

The Thapar Institute of Engineering & Technology, Patiala has started an 8-week programme on 'Data Processing Techniques' from June 13, 1988. The course contents are Computer and Modern Office and Data Processing in Business; COBOL; Ciles and Program Design; System Analysis & Design; Data-Base; and Fundamentals of CAD, CAM and Spreadsheet. Fifty participants are attending the course.

This is the second course being run by the Institute while the first on "Programming and Programming Methodology" and was held in June/July, 1987.

## **JNU Introduces M. Phil. in Russian**

The Academic Council of the Jawaharlal Nehru University (JNU) has approved the institution of M.Phil Programme in Russian in the Centre of Russian Studies of the School of Languages from the Academic Year 1988-89. This is in accordance with the structure of courses for the programme approved by the Board of the School.

The Council has also accepted the recommendations of the Board of the School of Languages for providing for entry point for admission to 2nd year (3rd Semester) of the five-year integrated programme in languages to such of the candidates who successfully complete first year of B.A. under 10:2:3 pattern of education from a recognised university or any other public examination recognised by JNU as its equivalent.

## **Volunteer Corps for Literacy**

The Indian Adult Education Association (IAEA) has formed a National Volunteer Corps for eradication of illiteracy under the National Literacy Mission. Its

immediate task will be to organise a short-term campaign to eradicate illiteracy and to create an atmosphere for the emergence of a learning society.

The Association has decided to enlist cooperation of 1.25 lakh students/volunteers in the Union Territory of Delhi at the first stage of the programme to provide literacy education to 1.25 lakh illiterate adults.

IAEA has appealed to the students, the educated youth, house wives, ex-servicemen, pensioners and other social workers to join the volunteer Corps. The State Resource Centres for Adult Education in Delhi and other parts of the country will help the volunteers with reading material suitable to the specific groups of learners.

The Association has initiated preparatory steps to launch this programme in a massive way with effect from October 2, 1988. The volunteers may get themselves enrolled at the Office of the Indian Adult Education Association, 17-B, Indraprastha Estate, New Delhi or with any other educational social institution collaborating with IAEA in this national programme.

# **News from Agril. Varsities**

## **HAU Veterinary College Celebrates 40th Anniversary**

Dr G.C. Negi, Vice-Chancellor Himachal Pradesh Krishi Vishva Vidyalaya, Palampur, inaugurated the 40th Anniversary Celebrations of College of Veterinary Science of the Haryana Agricultural University (HAU). He said Veterinary education and manpower provision were among the most important

matters confronting the Veterinary profession at this time. The pattern of growth of veterinary activities in the years to come will have to be perceived keeping in view not only the present level of development and the size of human and animal population, but also the changing pattern of animal

husbandry practices and its impact on animal health and the financial resources. For future planning it is worthwhile to learn from the developments in other parts of the world. For instance, in the West European countries and North America, the number of holdings with cattle, pigs and poultry has been decreasing while the number of animals per holding per man employed and per hectare has been increasing.

Dr. Negi observed that the Veterinary education has been, so far, based on training the students on the patho-physiological approach with great attention being paid to clinical diagnosis. Although priority for this approach should be retained in the future, yet it should be noted that as a result of the present orientation towards sick animals, comparatively little attention is or has been given to the healthy ones. This is somewhat irrational as usually there are more healthy animals in a herd than sick ones.

Dr. Har Swarup Singh, Vice-Chancellor, Haryana Agricultural University, in his presidential address asked the scientists to enable the farmers to produce more and get higher income through an effective animal health programme. After green revolution it was the turn of the white revolution. 'we are aware of the fact that in comparison with crop cultivation, much less attention has been paid to animal production and control of animal diseases. It is the need of the hour that the farmers should be helped in diversified ways', he added.

### PAU Develops Theileria Vaccine

A research team led by Dr. A.S. Grewal, Professor of Immunology

of the Punjab Agricultural University has successfully developed a Theileria vaccine culture to control Theileriosis, an important disease affecting high milk yielding imported pure and their crossbred with local Indian cattle. The mass scale cross-breeding programme, launched at national level to get higher milk yield, suffers a major setback due to this disease. On account of the non-availability of drugs to treat the suffering cattle, the only alternative is to use vaccine as preventive measure.

A new diagnostic test for Theileria, developed earlier by Dr. Grewal along with the availability of this vaccine culture, sets the

stage for the effective control of this disease.

The industrial significance and field applications of these recent developments would be to provide information on incidence, prevalence of theileriosis in cross-bred cattle, buffalo and indigenous cattle; rate of occurrence of new infection from season to season; role of local cattle and buffalo as reservoir of infection for cross-bred cattle and buffalo as reservoir of infection for cross-bred cattle; assessment of demand and practical significance of Theileria vaccine for its control; monitoring vaccination trials in the field, correlation between infection and productivity of the animals.

## News from UGC

### INSAT-1B Programme of UGC

Between 1st July to 9th July, 1988 the following schedule of telecast on higher education through INSAT-1B under the auspices of the University Grants Commission will be observed. The programme is of one hour duration every day from 12.45 p.m. to 1.45 p.m. (Repeated from 4 p.m. to 5 p.m.) and will be available on the TV Network throughout the country. For the viewers in Delhi and surrounding areas these programmes can be seen on the second channel.

#### 1.7.88

"The Fundamental Theorem of Calculus."  
"Saving the People"  
"Sick Oceans"

#### 2.7.88

"Literature and Music"  
"History of Clothing—IV—Cotton"

#### 3.7.88

No Telecast

#### 4.7.88

"Optics—X—Wave Length"  
"Raw Materials—Bananas"  
"Issues of Pricing Agricultural Products"

#### 5.7.88

"Plastics"  
"Teleteach—V"  
"Nutritional Deficiency Among Children"

#### 6.7.88

"Reproducing the Reality—Offset Printing"  
"Diabetes : Restoring the Balance"  
"University Round Up"

#### 7.7.88

"Introduction to COBOL-V; A Review"  
"In Search for Oil"

8.7.88

"Taylor Polynomials"

"Moving Pictures in Anthropology"

"Museum of Live Nature-II"

9.7.88

"European Model Music"

"History of Clothing—V; Silk"

### UGC Fellowships Value Enhanced

The University Grants Commission (UGC) has revised the emoluments rules and guidelines for Junior Research Fellows and Research Associates. The revised emoluments will be effective from 1.1.1987.

The revised value of Junior Research Fellowship would be Rs. 1800/- p.m. in the first two years and Rs. 2100/- in subsequent years. Revised emoluments will

be applicable to those who have qualified in the National level tests conducted for the University Grants Commission, jointly by the UGC and CSIR, and GATE. Research Associateships as existing are in four slabs of Rs. 1400/-, Rs. 1600/-, Rs. 1800/- and Rs. 2,000/- have also been revised in the slabs of Rs. 2200-100-2700, Rs. 2700-100-3200, Rs. 3200-100-3700 and Rs. 3700-125-4325 respectively.

The scales of pay of Research Scientists selected and placed at various institutions by the Commission, have also been revised and brought at par with the revised pay scales of Lecturers, Readers and Professors with effect from 1.1.1986. The revised schemes for JRF, RA & RS for future selections have been circulated and universities advised to claim arrears due to the enhancement.

## News from Abroad

### Evaluating Corporate-Campus Cooperation

The Business-Higher Education Forum, an organization of campus and corporate chief executives affiliated with the American Council on Education has recommended that colleges, universities, and corporations need to improve the way in which they evaluate their collaboration in research and technology. It has noted that cooperative research and development and technology exchange programs have increased threefold in the last 10 years.

In a recent report it has observed that "the recent proliferation of partnerships demonstrates be-

yond a doubt that our two sectors are willing to cooperate—a significant improvement over the environment that existed decade ago." "The critical challenge" the report, further said, "is to ensure that our cooperative research and technology exchange programs are in fact producing, or will produce, their intended results."

To that end, the report made one principal recommendation: "Universities and corporations need to assess the results of their collaborative research and technology exchange efforts more systematically and effectively."

The two-volume report, entitled

"Beyond the Rhetoric: Evaluating University-Industry Cooperation in Research and Technology Exchange," was prepared by a steering committee of forum members that was co-chaired by Stanley O. Ikenberry, President of the University of Illinois, and Jack D. Sparks, retired chairman of the board of Whirlpool Corp.

"We are tremendously impressed by the multiplicity and variety of university-industry relationships that have developed," Ikenberry said. "But we are concerned that efforts to assess programs have not always kept up with the rapid proliferation of exchanges. As a result, program participants are not always sure whether they're getting the intended results or if they're on the right track."

Sparks said the forum is not recommending "a single set of evaluation criteria. There's far too much diversity for that. Each program must be measured individually - on its own merits."

The first volume of the report, directed at chief executives, offers recommendations that draw from successful programs illustrating a range of corporate-academic "interactions."

The second volume is designed for administrators and evaluators of cooperative programs. It includes guidelines for defining program objectives, measuring university-industry cooperation, and designing an evaluation system.

The report is available from the Business-Higher Education Forum, One Dupont Circle, Suite 800, Washington, DC 20036. The cost is \$9 for volume 1 and \$16 for volume 2; both volumes cost \$20.

## Environmental Education at all Levels of Teaching

The Commission of the European Communities for South Asia has recently adopted a proposal for a Council Decision calling on the relevant authorities of the Member States to promote the introduction of environmental education at all levels of teaching as well as in the context of vocational and adult training programmes. The proposal calls on the competent authorities of the Member States to give consideration to the basic aims of environmental education when drawing up curricula, make provision for practical activities, develop teachers' knowledge, encourage their further training and provide teachers and pupils with appropriate teaching materials.

At Community level, the proposal invites the Commission to : produce an inventory of initiatives, organize meetings, seminars and symposia, place, basic documentation at the disposal of teachers and pupils promote meetings between young Europeans, encourage initiatives by young people, organize summer courses at European universities and include cooperation on environmental matters between the academic world and industry in the ARION, ERASMUS and COMETT programmes.

According to this proposal, the objectives of education in matters relating to the environment are to increase public awareness of the problems existing in this field and to guide the citizen's behaviour in the direction of the greatest possible protection of the environment and natural resources.

The achievement of these objectives demands an awareness of the environment as the common

heritage of mankind; the ecological balance and the need to safeguard it; the need for a rational utilisation of natural resources; the effects of human activities on the local and world environment, the way in which each individual can, by his own behaviour, particularly as a consumer, contribute to the protection of the environment; and the right to enjoyment of an unpolluted environment.

## We Congratulate...

Dr. Maheswar Mishra, Prof. & Head, Deptt. of Animal Production, College of Veterinary Science and Animal Husbandry, Orissa University of Agriculture & Technology, Bhubaneswar who has been awarded Watumul Foundation Medal for outstanding contribution in the field of Life Sciences.

## Books Received

(1) Aggarwal, J.C. and Agrawal, S.P. **Our Survival : Clean Life, Clean Politics and Clean Administration.** Delhi, Doaba House, 1987. 127p. Rs. 30/-.

Decries the sharp decline in the value system after the independence and makes a bold plea for inculcation of values, eradication of corruption and clean administration. Contents include vedic teachings on clean life, fundamental duties of citizens, 12 great spiritual leaders on clean life, our achievements, our non-achievements, corruption and its origin, portrait of clean public servant, and action oriented 49 Point Programme.

(2) Craig, Tom and Wate, Clive, eds. **University Entrance 1988: The Official Guide.** London, Association of Commonwealth Universities, 1987. 369p. £9.50.

Published by the Association of Commonwealth Universities (ACU)

for the Committee of Vice-Chancellors and Principals of the Universities of the United Kingdom (CVCP), University Entrance 1988 is the new annual publication which seeks to replace the 'Compendium of University Entrance Requirements' which had served students and their parents for over two scores of years and had come to be accepted as an essential source of information on entrance to universities in U.K. Colourfully produced, the new Guide provides profiles of 82 universities and colleges with standardised information on student enrolments, libraries and computer facilities, accommodation and entrance policy and practices, etc. The standardised format allows for comparisons between different universities. 59 subject tables which list 9,000 courses that are offered by British Universities, listing their entrance requirements, constitute the hall mark of the new annual. The fact that the Guide has been produced in collaboration with the Universities Council for College Admissions vouchsafes the authenticity of the data.

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# UNIVERSITY OF DELHI SOUTH CAMPUS

Benito Juarez Road, New Delhi-110 021

## ADMISSION NOTIFICATION 1988-89

Admission to the following Post-Graduate Courses leading to Master's Degree in the Faculties of Arts, Social Sciences, Mathematics and Inter-disciplinary and Applied Sciences for the session 1988-89 for the students who have pursued 15 years of education will be made through centralized registration at South Campus, Benito Juarez Road, New Delhi-110 021 from 1-7-1988 to 8-7-1988 (except Saturday's and Sunday's) from 9 00 A.M. to 1.00 P.M. and 5 P.M. to 7 P.M.

Applied Psychology, Business Economics, Commerce, English, History Hindi, Philosophy, Political Science, Sanskrit, Mathematics, Biochemistry, Genetics, Microbiology, Electronics, Post B.Sc. Diploma in Electronic Instrumentation.

For M.Sc., in Plant Molecular Biology Admission will be made on the basis of an Admission Test and Interview for which separate notification has already been issued.

Bulletin of information containing details about the eligibility requirements, procedure for registration, etc. can be obtained on or after 24-6-1988 from the office of the South Campus, Benito Juarez Road, New Delhi-110 021 on payment of Rs. 2/- in cash or a crossed Indian Postal Order for Rs. 2/- drawn in favour of the Assistant Registrar, South Campus payable at the New Delhi Post Office alongwith a self addressed envelope (Size 13 cm x 20 cm) with postage stamps worth Rs. 2/-.

**Note :** (i) Students will be free to Register their names at either South Campus or North Campus or at both Campuses in so far as subjects in the Faculties of Arts, Social Science and Mathematics are concerned.

**Registration for Business Economics, Electronics, Genetics, Microbiology, Biochemistry and Post B.Sc. Diploma in the Electronic Science would be done only at the South Campus.**

Students may also note that the number of seats available in various courses at each Campus is limited.

(ii) Admission to the South Campus and its colleges will be made independently in order of merit from amongst the candidates registered at South Campus according to the number of seats available.

### M.Phil PROGRAMME

M. Phil Programme in Commerce, Business Economics, Hindi, Political Science, Biotechnology, Electronics Science, Plant Molecular Biology are offered at South Campus. For admission forms, etc. please contact the office of the concerned department at South Campus.

### Ph.D. PROGRAMME

Ph.D. Programme is offered by all the Departments in the respective Faculties. For the Faculties of Arts, Social Science and Mathematics please contact the respective Faculties at the North Campus; and for the Faculty of Inter-disciplinary and Applied Science, the Dean at South Campus may be contacted.

**Prof. Abad Ahmad  
DIRECTOR**



# AIU Library

Established in 1965, the AIU Library has acquired over the years a valuable collection of books and documents on Higher Education. Among the topics prominently represented are Educational Sociology, Educational Planning, Educational Administration, Teaching & Teachers' Training, Examinations, Economics of Education and Country Studies. Developing fields of Adult Education, Continuing Education and Distance Education, and Educational Technology are also well stocked. The Library is particularly strong in its collection of reports whether they are on the setting up of different universities or on the state of Higher Education. Files of Annual Reports of different universities are also maintained. Readers are kept informed of the latest acquisitions through our column 'Additions to AIU Library'.

The Library also receives about a 100 periodical titles on Higher Education. All these are indexed regularly and a select list appears every month as 'Current Documentation in Education'.

Doctoral Degrees awarded during the preceding month are reported as 'Theses of the Month', while registrations made for such degrees are flashed as 'Research in Progress'. Bibliographies are also compiled and supplied on demand.

Research scholars and students of education are welcome to use these resources. The Library is open from 9-00 a.m. to 5-30 p.m. Monday through Friday. Access can also be had through later library loan for which requisition must be made through your Librarian.

## ADDITIONS TO AIU LIBRARY

Association of Indian Universities. Delhi. Question bank book series 13 Electrical power system. New Delhi, Author, 1987, xx, 424p.

Central Bureau of Health Intelligence. New Delhi. *Health information of India 1987*. New Delhi, Author, 1987, xxiii, 398p.

Debray, Régis. *Teachers, writers, celebrities. The intellectuals of modern France*. London, Verso (c 1981) xxvi, 251p.

D'Souza, Lena and Prabhakar, Annamma. *Managing performance appraisal in educational organisations. A practical guide*. Bombay, SNDT Women's University (c 1987) 33p.

*Encyclopaedia of Sports Games and pastimes*. Delhi, Sri Satguru Publications, 1988. 772p.

Feller, Irwin. *Universities and state governments. A study in policy analysis*. New York, Praeger (c 1986) xxii, 170p.

Hough, J. R. *Education and the national economy*. London, Croom Helm (c 1987) 307p.

Kundu, C.L. *Indian yearbook on teacher education*. New Delhi, Sterling (c 1988) xx, 467p.

Lewis, John, ed. *Science and technology and future human needs*. 9V. Oxford, Pergamon Press, 1987.

V1. Lewis, J.L. and Kelly, P.J., ed. *Science and technology education and future human needs*. xii, 185p.

V2. Frazer, M.J. and Kornhauser, A., ed. *Ethics and social responsibility in science education*. x, 264p.

V3. Waddington, D. J., ed. *Education, industry and technology*. xviii, 361p.

V4. Graves, Norman J., ed. *Land, water and mineral resources in science education*. xii, 312p.

V5. Kelly, P.J. and Lewis, J.L. ed. *Education and health*. xi, 293p.

V6. Rao, A.N., ed. *Food, agriculture and education*. ix, 247p.

V7. Kirwan, D.F., ed. *Energy resources in science education*. xvi, 214p.

V8. Baez, *Environment and science and technology education*.

V9. Taylor, Charles, ed. *Science education and information transfer*. x, 230p.

Lynton, Ernest A. and Elman, Sandra E. *New priorities for the University. Meeting society's needs for applied knowledge and competent individuals*. San Francisco, Jossey Bass (c 1987) xiv, 194p.

Miller, Richard J. *Evaluating faculty for promotion and tenure*. San Francisco, Jossey-Bass (c 1987) xv, 257p.

Mishra, R.S. *How I faced an invited trouble: Problems and suggestions*. Lucknow, Prakashan Kendra, 1988. xiii, 143p.

Nuttgens, Patrick. *What should we teach and how should we teach it? Aims and purpose of higher education*. Hants, Wildwood House (c 1988). vi, 165p.

Parikh, Ramlal, ed. *Population education an approach to formulation of curricula: Report of the Task Force on curriculum development*. Ahmedabad, Population Education Resource Centre (c 1987) ix, 37p.

Porter, D. and Padley, J.S., ed. *Training university administrators in Europe: An OECD/IMHE report*. Hampshire, Gower (c 1982) 137p.

Self, John, ed. *Artificial intelligence and human learning : Intelligent computer-aided instruction*. London, Chapman and Hall (c 1988) xix, 432p.

Shah Beena, ed. *Revamping the examination system*. New Delhi, Northern Book Centre (c 1988) xiii, 221p.

Straughan, Roger and Wilson, John, ed. *Philosophers on education*. London, Macmillan, 1987 x, 180p.

# THESES OF THE MONTH

A List of Doctoral Theses Accepted by Indian Universities.

## HUMANITIES

### Fine Arts

### Music

1. Kapoor, Tripath Kaur. *Uttari Bharat mein sangit shiksha, 1900-1980 tak*. Kurukshetra.

2. Santosh Kumari. *A critical study of Haryanvi folk music and its affinity with Hindustani classical music*. Kurukshetra.

### Language & Literature

### English

1. Anand, Inder Paul. *Samuel Beckett's plays : A study in existential form*. Kurukshetra.

2. Chansoria, Alok. *A critical study of the writings of Jawaharlal Nehru*. Durgawati, Dr. S.B. Shrivastava, Department of English, Rani Durgawati Vishwavidyalaya, Jabalpur.

3. Oommen, Susan. *The social radicalism of Norman Mailer*. Kerala, Dr. K. Ayyappa Panicker, Prof. and Head, Institute of English, University of Kerala, Trivandrum.

4. Singh, Sunaina. *The image of the new woman in Margaret Atwood and Anita Desai*. Osmania.

5. Somvanshi, Jagdish Singh. *Myth and legend in the novels of John Steinbeck*. Kurukshetra.

6. Talwar, Neelima Satya. *Appollo's Laurel Bough : A study of the theme of natural science in drama*. Baroda.

7. Vinay Kumar. *A critical study of imagery in Walt Whitman's poetry*. HS Gour, Dr. (Smt) Urmila Verma, Deptt. of English, Dr. Harisingh Gour Vishwavidyalaya, Sagat.

### Sanskrit

1. Mishra, Surendra Mohan. *Anumanapricechda of Nyayabhasana : A study*. Kurukshetra.

2. Muni Lal. *Prakashit Sanskrit Chhaya Narakon ka sameekshatmak adhyayan*. Kurukshetra.

3. Pushp Lata. *Ramanuja-Bhasya on the Bhagavadgita : A study*. Kurukshetra.

4. Sharma, Radhe Shyam. *Patanjala Mahabhasya ke adhar per Sanjina evam Paribhasa Sutron ka sameekshatmak adhyayan : Prathama Narahnika ke sandarbh mein*. Kurukshetra.

5. Shukla, Kamal Kishor. *Rukmani-Haran Mahakavya ka samalochanatik adhyayan*. Durgawati, Dr. R.B. Dwivedi, Reader, Department of Sanskrit, Rani Durgawati Vishwavidyalaya, Jabalpur.

6. Singh, Chitraranjan Dayal. *Swami Dayananda ke Yajur veda bhasya mein bhaya evam Marut ka swarup : Ek sameekshatmak adhyayan*. Kurukshetra.

7. Sudan, Sunita. *The literary study of the inscriptions of the Parampara Dynasty*. Jammu. Dr. Ved Ghuil, Prof., Department of Sanskrit, University of Jammu, Jammu.

### Punjabi

1. Amarjeet Kaur. *Bidesi Punjabi galp : Ek alochanatmak adhyayan*. Kurukshetra.

2. Gurdev Singh. *Dhoni Ram Chatrik de kavita da alochanatmak adhyayan*. Kurukshetra.

3. Ramesh Kumar. *Nanak bani da chhand vidhan*. Kurukshetra.

### Kangri

1. Madhu Bala. *Phonology of Kangri dialect*. Kurukshetra.

### Hindi

1. Ram Rattan. *Acharya Nand Dulare Vajpavee ke sameeksha sidhant*. Kurukshetra.

2. Saravast, Kalyani. *Prasad aur Mahadevi ke pratik, yojana ka tulnatmak adhyayan : Kamayani aur Deepthika ke sandarbh mein*. Kurukshetra.

3. Sharma, Geeta. *Hindi niti kavya aur usmein Virind ka sthan*. Devi Ahilya. Dr. S.S. Vyas, Radio Colony, Indore.

4. Shakuntla. *Bhishma Sahni ke rahitva mein samajik, rainaitik chetna*. HP.

5. Siddharth, Archana. *Adhvay samaj ka badalata yatharth aur Hindi-Katha sahitya*. JNU. Dr. Manager Pandey, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

6. Tej Singh. *Pragatisheel andolan aur Nagarjun ka katha sahitya*. JNU. Prof. (Mrs) Savitri Chandra, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

### Urdu

1. Khurshid Ahmed. *Krishan Chander ke novelon ke tazreebi faza*. JNU. Dr. Aslam Parvez, Centre of Indian Languages, Jawaharlal Nehru University, New Delhi.

### Bengali

1. Abdus Sattar. *Bangla upanyase gramini jibani uttar-upanibesh parba*. Calcutta.

2. Bandyopadhyay, Sibani. *Rabindranath-a-nabaparijaya Bangadarshan*, 1308-1312 B.S. Burdwan. Dr. Amitrasudan Bhattacharyya, Formerly Lecturer, Department of Bengali, University of Burdwan, Burdwan.

3. Chattopadhyay, Sibabrata. *Rabindranath Natak Sanlap*. Burdwan. Dr. Sakubrata Ghosh, Reader, Department of Bengali, University of Burdwan, Burdwan.

4. Dam, Mrinal Kanti. *Time of novel and Bankim Chandra*. NBU.

5. Khan, Layak Ali. *Bangla sahitye Musalman samaj-o-charitra*. Calcutta.

6. Saha, Radheshyam. *Progressive literary movement and modern Bengali poetry, 1935-1950*. NBU.

#### Oriya

1. Meher, Jugal Kishore. *Bhima Bhoinka rachanare adhyatmikata swarupa*. Sambalpur. Dr. K.R. Panigrahi, Reader, Department of Oriya, Sambalpur University, Burla.

2. Parida, Pramod Kumar. *Oriya kavare subhasana, from the kavya vega to the end of Radhanath age*. Sambalpur. Dr. B.C. Jena, Reader, Department of Oriya, Sambalpur University, Burla.

#### Manipuri

1. Singh, Waibanti Raghumani. *A comparative study of Imphal and Aizawl dialects*. Manipur. Dr. M.S. Ningombam, Assoc. Prof., Department of Linguistics, Manipur University, Imphal.

#### Telugu

1. Rama, Gogineni. *Andhra Bhagavatamulu : Street patronage and namu*. Andhra.

2. Suryanarayana Murty, Jyoti Venkata. *Andhra Mahabharatam Dharma Raju*. Andhra.

3. Venkata Lakshmi, Goruguntula. *Ekan's Dwipada Ramayana Aesthetique*. Andhra.

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1. Hulodi, Mrutyunjaya Shivappa. *Urban planning: A case study of Gadag-Betageri*. Karnatak. Dr. M.F. Karennavar, Administrator, Karnatak University, Post Graduate Campus, Lingaraj College Compound, Belgaum.

2. Innayondang. *Levels of rural development in Nagaland: A spatial analysis*. Gauhati. Dr. Md. Taher Prof. & Head, Department of Geography Gauhati University, Gauhati.

3. Joshi, Hem Lata. *Fertilizer industry of India: A geographical appraisal*. Rajasthan. Prof. Indra Pal, A-14 Anita Colony, Gandhi Nagar, Jaipur.

4. Mitra, Satibrata. *Industrial development in the North Eastern part of Calcutta metropolitan district*. Burdwan. Prof. Monoranjan Choudhuri, Prof. (Retd). Department of Geography, University of Burdwan, Burdwan.

5. Roy, Amar Nath. *The sacred complex of Rajgir: A study in cultural geography*. Magadh.

#### History

1. Abhay Kumar. *A critical study of the socio-economic life under Chandell's as depicted in inscriptions, coins and art pieces in Jajakhukii*. HS Gour. Dr. R.N. Agarwal, Department of Ancient Indian History, Culture and Archaeology, Dr. Harisingh Gour Vishwavidyalaya, Sagar.

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3. Choudhary, Hasen Uzzaman. *Consensus and political development perspectives in the History of Bangladesh, 1947-72*. Calcutta.

4. Pramodini Devi, Nongmaithem. *The cultural history of early Manipur*. Manipur. Prof. Gangumei Kabui, Department of History, Manipur University, Imphal.

5. Pravabati Devi, P. *The history of rise and growth of Hinduism in Manipur from the earliest times to the beginning of the 19th century A.D.* Manipur. Dr. G.P. Singh, Assoc. Prof. Department of History, Manipur University, Imphal.

6. Ramanaiah, J. *A study of the temples in Karimnagar District*. Hyderabad. Prof. T. R. Sharma, Head, Department of History, University of Hyderabad, Hyderabad.

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### Just Published

#### Bibliography On Women At Work In India

### AN UPDATE 1985-1986

by  
Suchitra Anant  
Sarmila Ghosh  
S.V. Ramani Rao

#### INSTITUTE OF SOCIAL STUDIES TRUST

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Rs. 75/- per copy

# INDIRA GANDHI NATIONAL OPEN UNIVERSITY

## ANNOUNCES ADMISSION TO CERTIFICATE PROGRAMME IN FOOD AND NUTRITION (SEPTEMBER 1988)

Indira Gandhi National Open University, an autonomous institution set up under an Act of Parliament, invites applications for admission to its Certificate Programme in Food and Nutrition. The basic task of the Indira Gandhi National Open University is to advance and disseminate learning and knowledge by a diversity of means including the use of communication technology. In the process it has to increasingly aim at democratisation of higher education and maintenance of high quality, covering larger segments of population, vocations and professions. Alongwith this, it has to encourage and strengthen the open and distance education systems in the country.

### 1. Who Should Apply ?

This programme is useful for all who are concerned with the health of family and community. It is open to all literate MEN and WOMEN who have attained the age of 20 years. However, being a pilot programme, initially it is open to the residents of the union territory of Delhi, and the States of Uttar Pradesh, Gujarat, Assam and Andhra Pradesh. Though the scheme is open in nature and the University would make the programme accessible to all above who are otherwise eligible for it, it however reserves its right to rationalise the limit in admissions depending on facilities and resources available with it.

### 2. How Will You Study ?

The University offers opportunities for higher education through the use of distance teaching methods according to which the students will be supplied carefully designed self-instructional printed study materials, assignments for home work, facility for the use of audio-video cassettes and counselling/tutoring at the Study Centres spread all over the country. Counsellors/Tutors shall be available at study centres to which the students will be allocated after admission is finally confirmed.

### 3. How Long would you Study the Course ?

A minimum study period of 6 months is required to be devoted. However, the students have the freedom to complete the programme successfully in a maximum period of 2 years. Thus people engaged in their profession or domestic chores can pace their studies depending on time and other facilities available with them.

### 4. What will you Study?

The main thrust of this programme is on

- Knowledge and understanding of the basic facts related to Food and Nutrition.
- Awareness of the existing common nutritional problems and supplementary feeding programmes.
- Management of food safety and economics of food, and
- Consumer awareness of the rights regarding food.

To suit the pace of learners the programme has been devised to be covered in three courses with related practicals interwoven in them.

CPFN-1	You and Your Food
CPFN-2	Your Food and its Utilization
CPFN-3	Economics of Food

### 5. In what Medium the Course will be offered ?

As a pilot programme the course will be offered in English, Hindi, Gujarati, Telugu and Assamese. Those who wish to take the course in Telugu will have to register for admission with Andhra Pradesh Open University for which there will be separate announcement by APOU.

### 6. How shall you be evaluated ?

(i) The first term-end examination will be held at the end of the prescribed duration of the Programme. The students can pace the studies by appearing at the subsequent term-end examinations organized every six months in one or more courses not completed in the first attempt.

(ii) The progress of the student will be assessed on a continual basis through assignments which the students will be required to submit on a regular basis as per schedule announced. The performance in continuous evaluation (assignments) will be counted towards final result as per the rules of the University.

### 7. How to Apply ?

Applications complete in all respects in the accompanied format alongwith the amount of programme fee should reach the University on or before Friday, the July 15, 1988. The relevant documentary evidences including the certificate of date of birth will be asked for only at the time of confirmation of admission to the Programme. It is therefore, advisable that authenticity of the information supplied in the Application Form is carefully ensured in the event of any information found incorrect or having any bearing on the



# MINISTRY OF HUMAN RESOURCE DEVELOPMENT

## (DEPARTMENT OF EDUCATION)

### POLISH GOVERNMENT SCHOLARSHIPS FOR PRACTICAL TRAINING 1988

Applications on plain paper in the format at Annexure I are invited from Indian nationals for the award of 6 (six) scholarships offered by the Government of Poland for short term specialisation in the following subject fields :

- (i) FISHERIES (ii) COAL MINING ; and
- (iii) SHIP BUILDING

**Value :** Adequate maintenance allowance, free accommodation and free medical care when necessary, will be paid by the Polish authorities.

**Duration :** 5 Months.

**Qualifications :** for (i) Uniformly good academic record, with 60% or above marks in Master's degree in the subject concerned or related fields. For (ii) and (iii) 60% or above marks in Bachelor's degree in Coal Mining Mining Engineering and Naval Architecture respectively.

**Note :** Conversion formula is to be given where grades have been awarded by University/Institution.

**Essential Experience :** At least two consecutive years teaching/research practical experience at the college or University level as on 1.10.1987 in subject field selected after passing the prescribed qualification. Successful completion of M.Phil./Pre Ph.D. would be considered as equivalent to the required experience.

**Age :** Must be less than 33 years as on 1.10.1987 (Relaxation in age upto two years will be given in the case of Scheduled Caste Scheduled Tribe candidates). Upper age limit and experience can be relaxed but not by more than three months at the discretion of the Selection Committee in the case of brilliant candidates.

**Passage Cost :** Travel expenses from India to Poland and back will be borne by the candidate or his/her sponsors/employers. Subject to availability of funds, the passage cost may also be met by the Government of India, provided the candidate is eligible under the rules.

**Note :** (1) The following documents must be attached with the application (a) Attested copy of the certificate certifying the date of birth (b) Candi-

dates belonging to SC/ST must attach a copy of certificate to this effect (c) Attested copies of marks sheets of the qualifying examination (d) Attested copies of all degrees-diplomas/certificates etc. (e) Candidates must furnish a clear and precise programme of study/research (f) A recent passport size photograph of the candidate duly signed in ink must be affixed on the prescribed application form (g) A crossed Indian Postal Order of Rs. 5/- (Rs. 1.25 in the case of SC/ST and other backward classes) issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development, Department of Education, New Delhi (2) Application in the subject fields other than those specified above will not be considered (3) Candidates who have already been abroad for study specialisation training either on a scholarship or on their own are eligible to apply only if they have been in India for at least three consecutive years after their return from abroad (4) Application of candidates who are at present abroad, will not be considered (5) Candidates having contacts with Polish Institute (s) in the field of their study training will be given preference (6) Candidates should have sufficient good knowledge of India and the donor country (7) Applications which do not contain Postal Orders and other required documents will be treated incomplete and will not be considered (8) No correspondence will be entertained with candidates not selected for interview scholarship (9) Canvassing in any form will be a disqualification (10) Candidates must send their applications sponsored by their employers. Pending sponsorship by employer, an advance copy of the application duly completed in all respects may be considered provisionally provided the application through proper channel is received within a fortnight from the last date prescribed for receipt of applications. (Indian Postal Order is to be enclosed with the advance copy) (11) Applications received after the prescribed last date will not be entertained for consideration.

Candidates should apply for the above scholarships on plain paper (preferably typed) furnishing the required details/particulars to the Deputy Educational Adviser, Ministry of Human Resource Development (Department of Education), External Scholarship Divi-

sion, Section ES-1, Room No. 516 'B' Wing, Shastri Bhavan, New Delhi-110001 latest by 15th July 1988. Application received after this date will not be entertained.

### APPLICATION FORM

Photograph

- Scheme under which applied :  
Subject.....Sub-subject.....Duration.....
- Name in full as in passport Dr /Shri/Shrimati/ Kumari (in Capital letters)  
.....  
(Surname) First name and Second names
- Name of father : .....
- Name of the sponsoring authority and/or name of the authority which will employ you on return from abroad.
- (a) Date of Birth : (b) Place of Birth :
- (a) Are you a citizen of India (b) State to which you belong (c) Are you a member of Scheduled Caste, Scheduled Tribe or other backward Class ? If so, give particulars and attach Certificate from the District Magistrate of your place of residence in support of your claim. For official use only

A | Q | L

- Address of the applicant with Pin Code numbers (i) Present Mailing : (ii) Permanent :
- Particulars concerning Examinations passed commencing with Matriculation or equivalent examination (attach attested photocopy of each certificate diploma degree for record)

University, Board Institution	Examination passed with year	Class Divn.	Percentage of Marks & Position, if any.	Subjects taken
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- (a) Details of papers published, if any  
(b) Research Work done practical training received.

Name of firm	Date of joining	Date of leaving	Monthly Honora- rium, stipend, Fellowship or Apprenticeship allowance, if any	Nature of training
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- (a) Particulars of employment :

Office/Institution where employed	Date of joining	Date of leaving	Post held	Monthly Salary	Nature of duties
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- Indicate what you have been doing since last examination mentioned in item 8.
- Have you any contact obligation with your employers ? If so, furnish details.

- (a) Knowledge of foreign languages, if any  
(Attach proof if possible)

Skill	Very Good	Good	Fair	Nil
Comprehension	Spoken			
	Written			
Expression	Speaking			
	Writing			

- Nature of proposed programme of study/ research :  
(a) Field of study :.....Main Subject..... Sub-subject.....  
(b) Scholarship/Fellowship desired for: Training/ Specialisation : Yes Doctoral Studies : Yes Post-doctoral studies : Yes  
(c) Name of the Institution (if known) where admission training is desired (in order of preference)  
(d) Are you willing to accept a place at some other institution if the appropriate scholarship agency recommends it ?  
(e) Have you already approached any University or University Professor in the country in which you intend to study? If so, give names and results  
(f) Degree sought, if any :  
(g) Give, separately in extra sheets, brief statement in about 100 words each about :  
(a) The work engaged in (b) Nature, programme of study research desired.
- Future prospects after studies/research :  
(a) Plan for the future (b) How are these related to the technical or economic development of the country ?
- (a) Have you applied for any other scholarship in the last two years ? If so, state the name(s) of the scholarship(s) and the subject of study/ research proposed therein. Are you willing to be considered under any similar scholarship scheme involving study in another country ? If so, which ?  
(b) If you had applied under this scheme previously, please indicate the result.
- Give below the names of two persons (they must not be related to you) who are in a position to testify from their personal knowledge as to your fitness for the proposed course of study. They must be persons under whom you have worked or studied.  
(i) Name with full address.....(ii) Name with full address:.....

16. Have you ever been abroad? If so, give the following particulars :

Country visited	Date of visit	Duration of visit	Purpose of visit	Scholarship received, if any
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17. Father's Name (in full)  
 (a) Nationality (b) Occupation (c) Address.  
 \*18. In case you are married, please state :  
 (a) The name of your Husband with full address  
 (b) Nationality (c) Occupation  
 (\*) For married female candidates only.  
 19. Next of kin to be notified in the case of emergency (give name, address and relationship)  
 20. Crossed Postal Order of Rs. 5/- (Rs. 1.25 in case of SC/ST and other backward classes) issued after the date of publication of this advertisement and payable to the Secretary, Ministry of Human Resource Development (Department of Education) New Delhi must be attached with the application form. Kindly give details of Postal Orders attached.

Sl. No.	Postal Order No.	Date of Issue of Postal Order	Name of the Post Office Issuing the Postal Orders	Value of the Postal Order Rs. Ps
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21. I hereby declare that the entries in this form and the additional particulars (if any) furnished in

reply to the questions above are true to the best of my knowledge and belief.

Place :

Date :

(Signature of the Candidate)

22. (a) Certified that Shri/Smt/Km.....is employed by us/me and he/she has been sponsored by us/me for study abroad.  
 (b) He/She will be relieved by me/us, if selected.  
 (c) I/We undertake that he/she will be permitted to join his/her department/organisation on return from study abroad. I/We will ensure that his/her terms and conditions of service i.e. salary, seniority, promotion, leave etc. will not be adversely affected on account of his/her absence and further that everything possible will be done to provide the scholar with work and conditions of service suitable to and commensurate with his/her qualifications training obtained abroad.

(Signature of Employing/Sponsoring Authority)

Place :

Date :

Seal of Office

@ Strike out if not applicable.

dayp. 88 164

## UNIVERSITY OF MADRAS

University Buildings, Chempauk, Madras-5

### NOTIFICATION

Applications are invited for admission to (i) **M.Sc. Degree Course in Polymers** (Five-year Integrated Course) to be conducted at the Department of Polymer Science, University of Madras, Guindy Campus. **Eligibility:** Higher Secondary Examination (Academic) with Mathematics, Physics and Chemistry and (ii) **M.Sc. Plant Science** (Semester Pattern) to be conducted at the Department of Botany, University of Madras, Guindy Campus. **Eligibility:** B.Sc. Degree in Botany with First Class. For SC/ST candidates 55% minimum, for the academic year 1988-89.

Prospectus and application forms can be had from the Registrar, University of Madras, Madras-600005, on requisition with a Demand Draft for Rs. 30/- drawn in favour of the Registrar, University of Madras, together with a self addressed stamped envelope (size 28 x 13 cms) for Rs. 1-80. **Last Date for issue and receipt of filled in application is 7-7-1988.** Postal Orders and Money Orders are not accepted. Filled in applications should be sent directly to the Head of the University Department concerned and not to the Registrar, University of Madras, before the expiry of the last date.

The University reserves the right to start or suspend the conduct of any of the above courses, if the circumstances so warrant.

**Major Dr. P. Kuttappan,  
REGISTRAR**



# UNIVERSITY OF CALICUT

## G&A II 'C' SECTION

No. GA II C1/11443/86(2)

Calicut University P.O.

Dated : 2-6-1988

### NOTIFICATION

Applications are invited from qualified candidates for appointment to the under mentioned posts in the University.

Sl. No	Name of the Department	Category	No. of Posts	Nature of vacancy	Reser- vation, if any	Specia- lisation for the post if any
1	2	3	4	5	6	7
1	MALAYALAM	(a) READER	1	Permanent	OPEN	Nil
		(b) LECTURER	1	-do-	Latin Catholic	Nil
2	ZOOLOGY	(a) PROFESSOR	1	-do-	ETB	Nil
		(b) LECTURER	2	1st Per- manent 2nd Tempo- rary	Latin Catholic OBC	Bio-Physics Nil
3	PSYCHOLOGY	LECTURER	1	Permanent	MUSLIM	Special weightage will be given to candidates possessing qualification in Experimental psychology.
4	COMMERCIAL AND MANAGEMENT STUDIES	(a) READER	2	Permanent	1st Open	Personnel Management
		(b) LECTURER	1	-do-	2nd SC ST	General Management
				-do-	1st Muslim	Organisational Behaviour Operations research
5	CHEMISTRY	(a) READER	4	Temporary	3rd L.C.	Commerce
				Permanent	1st OPEN	Environmental Chemistry
				-do-	2nd SC ST	Organic Chemistry
		(b) LECTURER	2	Temporary	3rd OPEN	Natural Products
				Permanent	4th Muslim	Inorganic Chemistry.
				Permanent	1st ETB	Organic Chemistry
				Temporary	2nd OPEN	—

1	2	3	4	5	6	7
6.	LIFE SCIENCES	LECTURER	2	Temporary Permanent	1st OPEN 2nd SC/ST	Microbiology (VIII Plan Post)
7.	LIBRARY SCIENCE	PROFESSOR	1	Permanent	OPEN	—
8.	PHYSICS	(a) READER	2	Permanent	1st SC ST (Renotifi- cation)	Experimental Solid State Physics
				-do-	2nd OPEN	Experimental Nuclear Physics
		(b) LECTURER	1	Temporary	SC ST	
9.	ENGLISH	(a) PROFESSOR	1	Permanent	LTB	
		(b) READER	2	Temporary Permanent	1st SC ST 2nd OPEN	
		(c) LECTURER	1	Permanent	L.C.	
10.	PHILOSOPHY	READER	1	Permanent	ETB	Re-notification
11.	ECONOMICS (TRICHUR)	(a) READER	1	Permanent	LTB	Statistics
		(b) LECTURER	2	Permanent Temporary	1st Muslim 2nd OPEN	
12.	BOTANY	(a) PROFESSOR	1	Permanent	ETB	
		(b) READER*	1	-do-	OPEN	Evolutionary
		(c) LECTURER	2	-do-	1st Muslim 2nd OPEN	Botany
13.	MATHEMATICS	LECTURER	1	Permanent	OPEN	
14.	SCHOOL OF DRAMA	LECTURER	1	Permanent	LTB	Children's Theatre
15.	ARABIC	LECTURER	2	Temporary Temporary	1st LTB 2nd OPEN	
16.	EDUCATION	READER	2	Permanent Permanent	1st OPEN 2nd SC/ST	
17.	MASS COMMUNICATION	LECTURER	1	-do-	OPEN	
18.	HISTORY**	LECTURER IN HISTORY OF SCIENCE & TECH- NOLOGY	1	Permanent	SC ST	
19.	STATISTICS	PROFESSOR	1	Permanent	OPEN	VIIIth Plan post
20.	LINGUISTICS	(a) READER	1	Permanent	OPEN	-do- Comparative Linguistics (to be posted in the School of Languages (English))
		(b) LECTURER	2	Permanent -do-	1st OPEN 2nd OPEN	In Tamil In Kannada (for the time being the posts will be attached to the Dept. of Malayalam.

1	2	3	4	5	6	7
21.	V.K. KRISHNA MENON MEMORIAL INSTITUTE OF INTERNATIONAL RELATIONS (DEPT. OF POLITICAL SCIENCE) (VIIth Plan Posts)	(a) PROFESSOR (b) READER (c) LECTURER	1 1 2	Permanent Permanent Permanent	OPEN OPEN 1st OPEN 2nd ETB	International Relation. International Relation with West Asian Studies. Political Science with International Relations.

**2. Scale of Pay :**

1. PROFESSOR : Rs. 2450--3600
2. READER : Rs. 1950--2950
3. LECTURER : Rs. 1300--2725

3. In respect of the renotified vacancies at Sl. Nos. 8 (a) 1st post and 10 above, if no suitable candidates are available from the community for which the post is reserved candidates from the other reserved communities will be considered for these vacancies as per rules of communal rotation. If no candidates even from the other reserved communities are available for these vacancies, they will be treated as 'OPEN' as per rules of communal reservation.
- 4\*. If no qualified candidate is available for the post of Reader in Evolutionary Botany, the post will be downgraded to that of LECTURER and filled up as reserved for L.C.  
\*\*Without specialisation subject to approval by the UGC.
5. In respect of all renotifications of vacancies shown above, those candidates who had responded to earlier notification should submit fresh applications in response to the present notification.
6. The prescribed application forms and other details can be had from the undersigned on request, remitting the cost of Rs. 12/- in respect of each post.
7. In the case of candidates applying from outside the state of Kerala remittance is to be made by postal order in favour of the Finance Officer, University of Calicut payable at the Calicut University Post Office.
8. Those applying from within the State of Kerala should remit the cost of the forms at a Government Treasury to the credit of the Head of Account "8443-00-106-CUF" of the Calicut University in the case of remittance in a Treasury in Malappuram District and to the credit of "8658-102-04 (i) B CUS" in the case of remittance in any other treasury in the State.
9. The Challan receipt/Indian Postal Order should be accompanied by a self-addressed cover affixed with postal stamps worth Rs. 3 40 (Rupees three and paise forty only) for obtaining the application form by Post.
10. Candidates belonging to SC ST unemployed, Physically handicapped persons and ex-Servicemen eligible for pension are exempted from remitting the cost of application forms.
11. Candidates from abroad may apply in plain paper accompanied by copies of certificates remitting application fee of Rs. 100/- (Rupees one hundred only) and they will be given additional time of 15 days for submitting their application.
12. Age limits, qualification etc. will be as prescribed in the detailed notification which will be supplied along with the prescribed application forms.
13. The last date for receipt of application in the University Office is 20-8-1988.

**Dr. S. Balaraman**  
**REGISTRAR**

# BANARAS HINDU UNIVERSITY ADMISSION NOTIFICATION (1988-89)

Applications are invited for admission to the following courses :

1. M.A. (Faculty of Social Science-Economics, Sociology, Psychology, History and Political Science).
2. M.A. (Faculty of Arts-all other subjects).
3. M.A. in Linguistics (Faculty of Arts).
4. M.Sc. (Faculty of Science).
5. M.Sc. Tech. (3-Years-Geophysics-Faculty of Science).
6. M.A./M.Sc. (Home Science).
7. M.Com. (Faculty of Commerce).
8. M.Phil. (English / Sociology / History).
9. D. Mus.-2 years in Performance (Vocal Instrumental Sitar/Violin)
10. Diploma Courses (3-years) (a) Hindustani-Vocal (b) Instrumental-Sitar Violin Flute Tabla (c) Karnataka Instrumental-Violin Veena (d) Dances-Bharatanatyam Kathak).

## Eligibility Conditions

For 1, 2, 4 & 6 (a) B.A. (Hons.) B.A. Pass, for M.A. and B.Sc. (Hons.) B.Sc. (Pass) for M.Sc., under 10+2+3 pattern (b) General aggregate 45% (aggregate of all the three years) (c) Minimum of 48% in the major (not minor subsidiary) in the subject of Admission.

For M.Sc. (Tech.) Geophysics—In addition to (a) and (b) above candidates should have obtained 50% marks in Physics and Mathematics and one more Science subject in B.Sc.

For M.Sc. (Biochemistry) under (4)—Besides Minimum eligibility conditions for M.Sc. candidates should have chemistry as major (not minor/subsidiary) and any two subjects out of Biochemistry / Botany / Mathematics / Physics / Physiology and Zoology in B.Sc.

For M.A./M.Sc. (Home Science)—Besides the eligibility conditions candidates should have Home Science as Hons./Major subject in B.A./B.Sc.

For M.A. in Linguistics under (3)—Candidates who have passed any of the following examinations (i) B.A. (3-Yrs.) after 10+2 with postgraduate Advanced Diploma in Linguistics (having six or more papers in the subject) : (ii) B.A. (Hons.) of 10+2+3 pattern in any

Language where a paper on Linguistics has been prescribed; (iii) M.A. in any Language with a paper in Linguistics.

For M. Com.—B. Com. (Hons.)/B.Com. (Pass) under 10+2+3 pattern with a minimum of 48% in aggregates.

For M-Phil—M.A. after 10+2+3 in the respective subject with a minimum of 50% marks.

For D. Mus.—10+2+3 (B. Mus.) plus 2 years M.Mus. of Banaras Hindu University or equivalent examination with 60% in practical.

For 3 years Diploma Courses—Good knowledge of Hindi/English and 10 years age on 1st July, 1988.

## Mode of Admission

(i) For M.A. M.Com. M.Sc. M.Sc. (Tech.)—On the basis of merit of Acad. index of the qualifying examinations

(ii) For M. Phil. Courses—The respective Depts. will conduct a Written Test for drawing the merit list for admission, the applicants may note that the written test will be held on 8th Aug. '88 at 11.00 A.M. and they should remain present in the

respective department. (No separate intimation for test will be issued to the candidates).

(iii) For D. Mus. and Diploma Courses in Music—Through an aptitude test Dates to be announced by the Faculty of Performing Arts, BHU.

**Reservation of Seats for SC/ST Candidates:—22.5% SEATS (15% FOR SC & 7.5% FOR SCHEDULED TRIBES) ARE RESERVED FOR SC ST CANDIDATES.**

**Application Forms:** Application forms and information leaflet are obtainable at the Counters of the respective Faculties (except for M.Phil and D.Mus. Courses in which case application form is obtainable at the Counter of the O.S.D., Publication Cell, BHU on pre-payment of Rs. 2/- (Rs. 5/- in case of M.Phil and D.Mus. Courses) between 11.00 AM to 2.00 PM on all working days. Application forms can be had by post from the following on sending a Self-addressed unstamped envelope of 23 Cm. x 15 Cm. size along with a postal order of Rs. 10/- (Rs. 12/- in case of M.Phil & D.Mus. courses) in favour of the Officer concerned to whom the request is made for the issue of application form (as given below) and payable at the Malaviyanagar Post Office, B.H.U.

For M.A. (Economics, Sociology, Psychology, History & Political Science)	—Dean, F.A. of Social Sci., BHU
M.A. for other subjects	—Dean, F.A. of Arts, BHU
M.Com.	—Dean, F.A. of Commerce, BHU
M.Sc. M.Sc. (Geophysics) and M.A. M.Sc. (Home Science)	—Dean, F.A. of Science, BHU
Three Year Diploma Course in Music Dance	—Dean, F.A. of Performing Arts, BHU

LAST DATE FOR	in respect of	
	Faculty of Performing Arts and Commerce	Faculty of Arts, Social Sci. & Science
Postal requests for application forms	9.7.1988	16.7.1988
Sale at the Counter	26.7.1988	1.8.1988
Receipt of duly completed application forms	29.7.1988	4.8.1988

APPLICATIONS RECEIVED AFTER THE LAST DATE EVEN BY POST SHALL NOT BE CONSIDERED. SEPARATE APPLICATION BE MADE FOR EACH COURSE. APPLICATION FORMS ARE NOT TRANSFERABLE. INCOMPLETE ADMISSION FORMS WILL BE REJECTED.

REGISTRAR

UNIVERSITY NEWS, MONDAY, JUNE 27, 1988

**CENTRAL BOARD OF  
RECRUITMENT  
(Kendriya Chayan Parishad)  
BANARAS HINDU UNIVERSITY  
VARANASI-221005**

**Adv. No. CBR/88**

**Last Date : 22-8-1988**

**Abbreviations:** E.Q. Essential Qualifications,  
D.Q. Desirable Qualifications.

Applications are invited for the following posts in the Banaras Hindu University.

The posts carry the benefits of Provident Fund, Pension and Dearness, House Rent and City Compensatory Allowances as admissible under the University rules.

**THE AGE OF** superannuation is FIFTY-EIGHT years.

**AGE LIMIT** is relaxable by 5 years in case of SC/ST candidates.

15% of the posts are reserved for Scheduled Caste and 7.5% for Scheduled Tribes provided suitable candidates are available.

**THE DESIGNATIONS** and/or Pay-scales may be changed as per requirements of the University. Number of vacancies may increase/decrease than advertised and posts may be drawn for immediate vacancies.

**THE PRESCRIBED QUALIFICATIONS** or their equivalents must be from recognised institutions.

Prescribed application forms and other details may be had by sending a Rs. 2 - stamped self-addressed env. (20 x 10 cm) alongwith postal order of Rs. 5 - (Rs. 1 - for SC/ST) in favour of Registrar, Banaras Hindu University or Bank Draft payable at the B.H.U. Branch of the State Bank of India. One application form will be provided against each stamped env. Excess amount of P.O. B.D. will neither be refunded nor adjusted in any way.

The last date for receiving applications by post, in person, and from applicants residing abroad (through proper channel) is **22-8-1988**.

The address both for obtaining and submitting the application forms is -

**The Registrar,  
Central Board of Recruitment,  
Banaras Hindu University,  
Varanasi-221-005.**

**188/1 Thirty Staff Nurses (S.S. Hospital) for drawing a panel (23 General + 5 SC + 2 ST).**

**Grade:** Rs. 1400-2600

**Age Limit:** 35 years (General)  
40 years (Ex-Army)

**E.Q.:** 1. [Matriculate with good knowledge of Hindi and English.

2. Qualified 'A' Grade Nurse with three years training in general nursing and six months of training in mid-wifery or special training in lieu thereof and registered with Nursing Council of India.

**D.Q.:** Ability to maintain stock Register, etc.

**188 2 One Biofeedback Therapist (Prakriti-Sthapana Yuktinjal) (Deptt. of Basic Principles, Faculty of Ayurveda).**

**Grade:** Rs. 1640-2900

**Age Limit:** 40 years

**E.Q.:** 1. Good Hind Class Master's Degree in Humanities/Social Sciences.

2. Knowledge of Ayurvedic Deha-Manas Prakriti Vigyan.

3. Five years experience of Dhatu Samya Therapy by Bio-feedback Procedure as per fundamentals of Ayurveda.

**D.Q.:** 1. Research Publications related to Ayurveda Kriya Sharira.

2. Experience of conducting Deha-Manas Prakriti Pariksha.

**188 3 One Punch Karma Therapist (Deptt. of Kayachikitsa, Faculty of Ayurveda).**

**Grade:** Rs. 1640-2900

**Age Limit:** 40 years

**E.Q.:** D.Ay M. M.D. (Ay.)-Kayachikitsa with specialisation in Punch Karma or special training in Punch Karma.

**OR**

A.M.S. A.B.M.S with Specialisation in Punch Karma.

**OR**

Graduate of Science with Diploma in Physio-therapy.

**D.Q.:** Two years Professional experience.

**188 4 One Statistical Assistant (School of Bio-medical Engg.)**

**Grade:** Rs. 1400-2300

**Age Limit:** 35 years

**E.Q.:** Good IInd Class Master Degree in Mathematics/Statistics with atleast six months experience of Statistical work.

**OR**

B.A./B.Sc. with Mathematics/Statistics as one of the subjects with three years experience of Statistical work.

**D.Q.:** Experience of having worked in Statistical Section of Research/Medical Institution.

**188 5 One Livestock Farm Manager (Deptt. of A.H. & Dairying) Instt. of Agricultural Sciences.**

**Grade:** Rs. 2000-3500

**Age Limit:** 35 years

**E.Q.:** 1. Bachelor or Veterinary Science and Animal Husbandary.

2. One year experience in livestock production and poultry management.

**D.Q.:** Master of Veterinary Science/ M.Sc. (Agriculture) Animal Husbandary and Dairying with teaching and research in the subject.

**188 6 One Film Projector/Public Address System Operator (Swatantrata Bhavan)**

**Grade:** Rs. 1400-2300

**Age Limit:** 35 years

**E.Q.:** 1. Pre-University/Intermediate/ 10+2 in Science stream.

2. I.T.I. Trade Certificate, Diploma in Cinematography.

3. Must have a cinematography permit licence issued by District Authority.

4. Must have at least 5 years experience as mm projector operator in a reputed theatre.

**D.Q.:** 1. Working knowledge / Experience in handling sound/public address system of all kinds.

2. A good working knowledge of English.

3. Graduate.

**188 7 One Editorial Staff Gr. III (Jyotish Panchang Vibhag).**

**Grade:** Rs. 1640-2900

**Age Limit:** 35 years

**E.Q. : 1.** Jyotishacharya (Ganit and Falit) in First Class.

**2.** Three years experience of Panchang Editing in an Institution.

**D.Q. : 1.** Applied knowledge of Dharmashastra.

**2.** Editing and research work in related subject.

**3.** Applied knowledge of proof reading.

**188/8 One Assistant Curator (Reserved for SC) (Bharat Kala Bhavan)**

**Grade : Rs. 1640-2900**

**Age Limit : 45 years (for SC candidate with relaxation)**

**E.Q. : 1.** Atleast IIInd Class M.A. in History of Art A.I.H.C. and Arch.

**2.** M.A. in museology or two years Diploma in Museology/Archaeology (relaxable in case of Ph.D.).

**D.Q. : 1.** Research and publication experience and/or two years experience of working in a Museum of repute.

**2.** Knowledge of Urdu/Persian/Arabic.

**188/9 One Assistant Curator (NUMISMATICS) (Bharat Kala Bhavan)**

**Grade : Rs. 1640-2900**

**Age Limit : Rs. 40 years**

**E.Q. : 1.** Atleast IIInd Class M.A. in History of Art/A.I.H.C. and Arch.

**2.** M.A. in Museology or two years Diploma in Museology/Archaeology (relaxable in case of Ph.D.).

**D.Q. : 1.** Research and Publication experience and/or two years experience of working in a Museum of repute.

**2.** Specialisation in Numismatics/Epigraphy.

**188/10 One Technical Assistant : (Deptt. of Pharmaceutics)**

**Grade : Rs. 1400-2300**

**Age Limit : 35 years**

**E.Q. : Graduates in Science with 3 years experience in handling sophisticated pharmaceutical instruments.**

**D.Q. : Diploma in Spectroscopy.**

**188/11 Two Chair Recorders (Reserved for blind) (University Works Deptt.)**

**Grade : Rs. 750-940**

**Age Limit : 27 years**

**E.Q. : 1.** Class VIII passed

**2.** Three years experience of Chair recanning.

**188/12 One Tabla Accompanist (Reserved for Scheduled Caste)**

**Grade : Rs. 1200-2040**

**Age Limit : 40 years (for Scheduled Caste)**

**E.Q. : 1.** A good performance with proficiency in Tabla.

**2.** Experience as Accompanist in Music, Conferences, Radio etc. with Vocal Instrumental Music.

**D.Q. : Matriculate with knowledge of Tabla Theory and experience of teaching in Tabla playing.**

**188/13 One Artist (Bharat Kala Bhavan)**

**Grade : Rs. 1640-2900**

**Age Limit : 35 years**

**E.Q. : 1.** B.F.A. or a Diploma in Arts

**2.** Knowledge in the techniques of traditional Indian Painting viz-Rajasthan, Pahars and Mughal Paintings.

**3.** Three years experience of working in an Art and Archaeological Museum as an Artist.

## INDIAN INSTITUTE OF TECHNOLOGY MADRAS

**Advertisement No. IITM R. 4/88**

**Invites applications for the following Posts:**

1. Deputy Registrar
2. Finance & Accounts Officer
3. Estate Officer

**Scale of Pay : Rs. 1200-50-1300-60-1900 (likely to be revised) Gross emoluments on the minimum of the scale of pay : Rs. 3075/-**

**Deputy Registrar**

**Qualification**

1. A good Bachelor's degree in Arts, Science, Commerce, Engineering or Technology of a recognised University.
2. A post graduate degree or diploma in any of the above fields or in Public Administration/Management of a recognised Institute/University or its equivalent.

**Experience**

A minimum of 10 years of relevant administrative experience preferably in a Government, Educational or Research Institute or in a commercial organisation of national standing. Out of this at least 5 years should be in a responsible position (in the pre-revised pay scale of Rs. 700-1300 700-1600). The candidates would be expected to have some familiarity with academic activities and working procedures in higher educational institution.

**Desirable**

1. Teaching and research experience or experience of life in a residential educational centre.
2. Experience of Computer Systems for information processing and retrieving.

Candidates who are not found fit for the post of Deputy Registrar may be considered for the lower post of Asst. Registrar at the discretion of the Institute.

**Finance & Account Officer**

**Qualification**

1. A good Bachelor's degree in Arts, Science, or Commerce of a recognised University.
2. A postgraduate degree or diploma in Commerce of a recognised Institute/University or its equivalent or recognised qualification as Chartered Accountant/Cost Accountant.

**Experience**

A minimum of 10 years of relevant Accounts experience in a Government, Educational or Research Institute or a Commercial Organisation of national

standing. Out of this at least 5 years should be in a responsible position (in the pre-revised scale of pay of Rs. 700-1300/700-1600). The candidates would be expected to have some familiarity with academic activities, working procedures, budget preparation etc., in higher educational Institute. The candidates must be conversant with Govt. of India rules such as Fundamental Rules & Supplementary Rules, General Financial Rules, Treasury Rules, Accounts Code, Civil Service Regulation etc.

**Desirable**

1. Experience of life on a residential campus.
2. Experience of Computer Systems for information processing and retrieval.

**Estate Officer**

**Qualification**

A good Bachelor's degree in Civil Engineering of a recognised University.

**Experience**

A minimum of 10 years experience in maintenance of residential, instructional buildings in a Government educational or research Institute or other organisations of national standing. Out of this 5-6 years should be in a responsible position in the pre-revised scale of pay of Rs. 650-1200 or Rs. 700-1600. The candidates would be expected to have familiarity with estate rules regarding licensing of quarters, public premises, operation and maintenance of water supply, sewage disposal system and other estate properties of a large residential educational campus. The estate officer is entitled for licence fee free unfurnished accommodation in the campus.

One post of Deputy Registrar and one Post of Estate Officer is reserved for SC/ST candidates.

**Age limit:** Maximum 52 years for all posts.

**General Information / Conditions / Instructions**

- (i) For all posts, where Post graduate qualification is prescribed,

experience means experience gained after Master's degree.

- (ii) The prescribed qualifications are minimum and the mere fact that a candidate possesses the same will not entitle him/her for being called for interview.
- (iii) The Institute reserves the right to restrict the number of candidates for interview to a reasonable limit on the basis of qualifications and experience higher than the minimum prescribed in the advertisement.
- (iv) The Institute also reserves the right of rejecting any or all applications without assigning any reasons therefor.

For application form, please address the REGISTRAR, INDIAN INSTITUTE OF TECHNOLOGY, MADRAS 600 036 with a self addressed stamped (Rs. 1.00) envelope (26 cm x 11 cm). Applicants are requested to indicate clearly the post and discipline for which they wish to be considered. Persons in the service of Government establishments and Public Sector Undertakings should apply through proper channel. Completed applications with a crossed non-refundable current Indian Postal Order of the value of Rs. 7.50 (Rs. 1.90 for SC/ST candidates) drawn in favour of the Institute payable at IIT, Madras P.O., should be sent to the Registrar of the Institute.

The last date for the receipt of completed applications is 20-07-1988.

REGISTRAR

**MAHARSHI DAYANAND UNIVERSITY**

**ROHTAK**

**CORRIGENDUM**

Adv. No. 3 88

It is notified for the information of all concerned that qualifications for the post of Assistant Director (Adult Education) (Rs. 1200-50-1300-60-1900 (UGC) already published vide Advertisement No. 3 88 in the issue dated 20.6.88 be substituted as under :

**Assistant Director**

- (a) Essential
  - (i) Good academic record in the

subject of Adult/Continuing Community/Extension Education/Community Development from a recognised Indian University or an equivalent degree from a foreign University.

- (ii) M. Phil. or Ph.D in a subject related to adult learning or Ph.D. in a subject under social sciences or Education Evidence of published learning materials and learning resources on areas listed in (i) above or published research in any of the relevant area/areas indicated above.

OR

- (i) Good academic record in the subject of Social Sciences/Social Work / Humanities / Education/ Sciences/Home Science.
- (ii) Post Master's diploma in Adult & Continuing Education from a recognised Indian University or an equivalent diploma/degree from a foreign University.
- (iii) M.Phil. or a Ph.D. in a subject related to adult learning or a Ph.D. in a subject under Social Sciences or Education or Evidence of published learning materials and learning resources in adult continuing community/extension education/community development or published research in any of these area/areas.

**EXPLANATION**

For determining "good academic record" the following criteria shall be adopted :

- (i) A candidate holding a Ph.D./ M.Phil. degree should possess atleast a second class Master's degree; or
- (ii) A candidate without a Ph.D. degree should possess a high second class Master's degree and second class in the Bachelor's degree; or
- (iii) A candidate not possessing Ph.D. degree but possessing second class Master's degree should have obtained first class in the Bachelor's degree.

b. About five years experience of field work teaching or research in a subject having bearing on Adult/Continuing Extension / Community / Non-

Formal Education or Community Development. This condition may be relaxed on the recommendation of the Selection Committee.

## REGISTRAR

### BANASTHALI VIDYAPITH

#### DEEMED TO BE UNIVERSITY

National Institution for Education  
of Women

#### REQUIRES

Lecturers Political Science 1  
Statistics 1 Perm.  
Music Vocal 1 Temp.

Qualifications As per UGC guidelines

Pay Scale : 2200-75-2800-100-4000.

Dearness Allowance, Contributory Provident Fund Gratuity Cum Insurance as per Vidyapith Rules. Residential Accommodation at Subsidized Rates.

Notes (1) Employees must become habitual wearer of KHADI on appointment.

(2) Selection Committee may recommend higher start in exceptional cases on merit.

(3) The Vidyapith reserves the right to fill, not to fill any post advertised.

(4) Preference to women candidates.

(5) If class return rail fare shortest route to persons appearing at interview.

Applications on prescribed forms must reach Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022 within 30 days of the advertisement. Forms can be obtained by sending self addressed stamped envelope of 16x23 Cm. size with Rs. 4.20 stamps or Rs. 9.20 stamps for registered post in favour of Banasthali Vidyapith. No. 6/88.

### BANASTHALI VIDYAPITH DEEMED TO BE UNIVERSITY

National Institution for Education  
of Women

INVITES applications for the following:

#### 1. Department of Education

(a) Instructor—I. to teach Drawing and Painting to B.Ed. classes. II M.A. Drawing and Painting or 5 years Diploma in Fine Arts B.Ed. desirable.

(b) Computer Technician—I. II M.C.A. or B.Sc. I High II with Diploma in Computer Science (D.C.A.) or I B.Sc. with Computer Science (3 years Degree Course).

(c) Educational Technology Technician—I. I High II post B.Sc. Diploma in Electronics T.V. Technology or I.T.I. Trained Technician (Electronics T.V. Technology) with 2 years practical experience.

#### 2. Department of Computer Science

Technical Assistant—I. II M.C.A. or B.Sc. I High II with Diploma in Computer Science (D.C.A.) or I B.Sc. with Computer Science (3 years Degree Course).

#### 3. Department of Electronics

Technical Assistant—I. I High II Post B.Sc. Diploma in Electronics or I.T.I. Trained Technician with 2 years practical experience.

B.E. (Electronics) preferred.

#### 4. Department of Textile Designing

Assistant Lecturers—2 I/High II Graduation with 3 years Diploma in Textile Designing / Technology (Specialization Printing/Weaving).

Pay Scale : (all above post in 1 to 4) 1490-30-1640-40-2000-50-2300-60 - 2600-75-3050.

(present initial emoluments Rs. 1684.00).

#### 5. Central Library

Sr. Technical Assistant—I. II M.A./M.Sc./M.Com. with II B.Lib.Sc. OR II B.A./B.Sc./B.Com. with II B.Lib. with 4 years experience.

Pay Scale : 1400-30-1640-40-2000-50-2300-60-2600-75-2900.

(present initial emoluments Rs. 1582.00)

#### 6. Laboratory Assistants—5.

(Biology, Computer Science, Electronics, Home Science, B.Ed.)

II B.Sc. Biology, II B.Sc. Maths, II B.Sc., Home Science, II B.Sc. with Diploma/Certificate in Computer Science/Electronics.

Pay Scale : 880-15-1000-20-1200-25-1400-30-1640-40-1680.

(present initial emoluments Rs. 994.00 p.m.)

Dearness Allowance, Contributory Provident Fund, Gratuity Cum Insurance as per Vidyapith Rules. Residential Accommodation at Subsidized Rates.

Notes : (1) Employees must become habitual wearer of KHADI on appointment.

(2) Vidyapith reserves the right to reduce or increase the number of vacancies or not to fill up any post advertised.

(3) Preference to women candidates.

(4) If class return rail fare shortest route payable to persons appearing at interview for post at 1 to 5.

Applications on prescribed application forms (seven copies) for posts at 1 to 5 and on plain papers for posts at No. 6 with necessary supportings (Age certificate, attested copies of mark-sheets) must reach Secretary, Banasthali Vidyapith, P.O. Banasthali Vidyapith (Rajasthan) 304022 within 30 days of the advertisement. Form can be obtained by sending self addressed stamped envelope of 16x23 Cm. size with Rs. 4.20 stamps. Rs. 9.20 stamps for registered post in favour of Banasthali Vidyapith. No. 7/88.

### INDIAN INSTITUTE OF CHEMICAL BIOLOGY

(COUNCIL OF SCIENTIFIC &  
INDUSTRIAL RESEARCH)

4, RAJA S.C. MULLICK ROAD,  
JADAVPUR,  
CALCUTTA - 700 032

Advertisement No : 1/88

Applications are invited from the Indian Citizens for the following posts :



**(I) Scientist-EI, One post, Scale Rs. 3700-125-4700-130-5000/-**

**Qualification** High Academic qualification with Ph.D. degree in Chemistry with atleast ten years' experience in the Chemistry of Marine Natural Products as evidenced by publication in reputed journals.

**Job requirement** The selected candidates will be required to provide leadership and to plan, guide and execute research projects in the area of marine natural products and guide a group of Scientists working in this area.

**(II) Scientist - B, C Two posts, Scale Rs. 2200-75-2800-EB-100-4000 - ; Rs. 3000-100-3500-125-4500 -**

**Qualification** M.Sc. 1st Class and preferably Ph. D. degree in Chemistry, Biochemistry with atleast 5 years research experience in the specified field.

**Post (f) Desirable** Knowledge in neuropharmacology, neuro-immunology and modern biological techniques

**Job requirement** To work on neuro-receptors and their function in the central nervous system and to assist in the planning and execution of research projects in this area.

**Post (II) Desirable** Experience in Microbial Transformation and chemical ecology and use of all modern physical methods as applied to marine natural products.

**Job requirement** - To carry out isolation, purification and characterization of marine and estuarine natural products, particularly lipids and to develop methodologies.

**(III) Scientist B : Five posts, Scale Rs. 2200-75-2800-EB-100-4000 -**

**Qualification** M.Sc. 1st Class degree in Biochemistry Chemistry Physiology Zoology and atleast three years research experience with published papers in leading international journals, Ph.D. preferred.

**Desirable** Good exposure to modern methods, techniques in the relevant field in a reputed laboratory.

**Job requirement**

**Post (I) (Reserved for ST candidate, General candidate may also apply)**

To work on problems related to regulation of gene expression in higher plants, experience in recombinant DN technique being essential.

**Post (II) (Reserved for ST candidate, General candidate may also apply)**

To work on the chemistry of natural products and application of modern physical methods in organic chemistry.

**Post (III) (Reserved for SC candidate, General candidate may also apply)**

To work on Computer application to organic chemistry.

**Post (IV) To work in the field of lipids in biological membrane specially in relation to isolation and mode of action of hormone.**

**Post (v) (Reserved for SC candidate, General candidate may also apply)**

To work on synthetic organic chemistry and applied oriented natural products.

**(IV) Technical Officer - B, Two posts, Scale Rs. 2200-75-2800-EB-100-4000 -**

**Post (i) (Reserved for SC, General candidate may also apply)**

**Qualification** M.Sc. 1st Class in Chemistry Biochemistry with at least three years research experience in a reputed laboratory. Ph.D. preferred.

**Desirable** Knowledge of handling, storage and disposal of radioactive materials.

**Job requirement** To carry on Radio-labelling of organic compounds, radio analysis and biotransformation studies. To assist the Project Leader in the management and supervision of radioactive materials and related matters.

**Post (ii) Qualification** A graduate with recognised Degree Diploma of Library/ Information Science. Atleast ten years experience in a reputed Scientific library.

**Desirable** Thorough knowledge in arranging and binding scientific journals/ periodicals including Accessioning.

**Job requirement** The selected candidate will be required to independently handle subscription to foreign journals

directly, reference queries survey literature and compile bibliographies for the research scientists.

**(V) Technical Assistant, Gr-III (I) (Reserved for ST candidates) 2 posts, Scale Rs. 1400-40-1800-EB-50-2300/-**

**Qualification** B.Sc. with Chemistry/ Physiology/ Zoology/ Physics as one of the subjects.

**Job requirement** To work on culture and maintenance of parasites/routine work of a biochemical/chemical laboratory and the job as may be assigned from time to time by the Project Leader.

**General Conditions**

1. The posts are temporary but likely to continue and carry usual allowances as admissible to Central Government employees stationed at Calcutta. The posts of Scientist-EI, B, C, and Technical Officer-B are contractual in the first instance for six years but also carry option for pensionable benefits when the posts become permanent. Higher initial start may be given to the deserving candidates. Qualifications relaxed in the case of candidate otherwise well qualified and considered suitable for the posts.

2. The name of post applied for and its serial number as appeared in the advertisement must be clearly indicated in the application form. Candidates applying for more than one post should send separate application for each post.

3. The present emoluments at the minimum of the scale is as follows:

Scale of Pay	Emoluments
Rs. 3700-5,000 -	Rs. 5,030.00
Rs. 3000-4500 -	Rs. 4,240.00
Rs. 2200-4000 -	Rs. 3,146.00
Rs. 1400-2300 -	Rs. 1,947.00

4. Canvassing in any form and/or bringing in any influence political or otherwise will be treated as a disqualification for the post.

5. Applications must be on forms which together with detailed instructions are obtainable from the Administrative Officer, Indian Institute of Chemical Biology, 4, Raja S.C. Mullick Road, Jadavpur, Calcutta-700032 by sending a self-addressed 90 paise stamped envelope

of 24 x 10 c.m. size. Number of advertisement, name of the post applied for and full address in block letters must be indicated at the top of the request to be made by 8.7.1988 for obtaining application forms. Complete applications on the prescribed forms together with an application fee of Rs. 8/- (no application fee in case of SC/ST candidates) in the form of crossed Indian Postal Order payable in favour of the Indian Institute of Chemical Biology, Calcutta-32 should reach by 22.7.1988.

6. Interim Enquiries will not be entertained.

# JAMIA MILLIA ISLAMIA JAMIA NAGAR, NEW DELHI-110025 ADMISSION NOTICE

No. 2 1988-89

Admissions are open to the following Courses for the academic year 1988-89.

**A. Faculty of Humanities & Languages, Faculty of Social Sciences and Faculty of Natural Sciences:**

(1) Ph.D.: Arabic, English, Hindi, History, Islamic Studies, Persian, Urdu, Economics, Political Science, Social Work, Sociology, Psychology, Commerce, Physics, Chemistry, Mathematics with Computer Science, Geography and Bio-Sciences. (2) M.A.: Arabic, Economics, English, Geography, Hindi, History, Islamic Studies, Persian, Political Science, Social Work, Sociology and Urdu. (3) M.Sc.: Physics (Material), Chemistry (Material), Mathematics with Computer Science, Bio-Sciences and Geography. (4) Post-graduate Diploma in Cartography. (5) B.A. (Hons.): Arabic, Economics, English, Geography, Hindi, History, Islamic Studies, Persian, Political Science, Psychology, Social Work, Sociology and Urdu. (6) B.Sc. (Hons.): Physics, Chemistry, Mathematics and Geography. (7) B.Com. (Hons.). (8) B.A. (Pass). (9) B.Sc. (Pass). (10) Advanced Diploma in Modern Arabic (Evening Course). (11) Diploma in Modern Arabic (Evening Course). (12) Certificate in Modern Arabic (Evening Course). (13) Diploma in Urdu Language Proficiency (for foreign students only).

## B. Faculty of Education

(1) Ph.D. (2) M. Phil. (3) M.Ed.

(Full-time and Part-Time). (4) M.A. (Educational Planning and Administration) (5) M.A. (Education) (6) Master of Fine Arts (M.F.A.). (7) Advanced Diploma in Special Education. (8) B.Ed. (9) Bachelor of Fine Arts (B.F.A.). (10) B.A. (Hons.) in Art & Art Education. (11) Diploma in Basic Training.

## C. Faculty of Engineering and Technology

(1) B.Sc. Engineering (Civil, Electrical and Mechanical). (2) B.F. (Civil) Evening Course. (3) Diploma in: (i) Civil Engineering and (ii) Electronics. (4) Certificate in: (i) Draughtsmanship (Mech.). (ii) Electronics and (iii) Refrigeration and Air-Conditioning.

## Mass Communication Research Centre

(1) Ph.D. (2) Master's Degree in Mass Communication (Radio, Television and Film). (3) Diploma in Science Journalism.

## F. Dr. Zakir Husain Library

Bachelor of Library and Information Science (Evening Course).

F. Correspondence Course in Urdu (through the medium of Hindi and English).

G. Prospectuses with Admission forms can be had from M/s. Maktaba Jamia Ltd., Near Faculty of Education Campus, Jamia Nagar, New Delhi-110025 on all working days between 9.30 a.m. and 1.30 p.m. on cash payment of Rs. 8/- for all Faculties (Combined) and B. Lib. & Information Science Course or by Post by sending a Crossed Indian Postal Order of Rs. 10/- for Ordinary Post (U.P.C.) and Rs. 16/- for Registered Post for Faculties (Combined). Payable to M/s. Maktaba Jamia Ltd., New Delhi, alongwith a self-addressed envelope of 18x25 cms. size. In order to save time the candidates, desirous of obtaining the Prospectuses with Admission Forms by post, are advised to write immediately to the Maktaba Jamia Ltd.

H. Prospectuses with Admission Forms for all Faculties and B. Lib. & Information Science Course are Available.

I. Last Dates (Upto 4.00 p.m.) for receiving the complete Admission Forms for various Courses are as follows:

(1) Ph.D. (for the Faculties): A copy

of the Ph.D. Regulation with Application Form can be had from the Registrar's Office (Jamia) on cash payment of Rs. 5/- or by post by sending a Crossed Indian Postal Order of Rs. 6/- payable to Jamia Millia Islamia, New Delhi alongwith a self-addressed envelope of 18x25 cms. size. At present candidates may apply for admission three times in the year, namely, by 20th August, 20th December and 20th April. (2) The Aforesaid Three Faculties (under A above): (i) M.A./M.Sc. (Previous)-19.7.88, (ii) B.A./B.Sc./B.Com. (Hons.), 1 year-11.7.88, (iii) B.A./B.Sc. (Pass), 1 year-15.7.88. (iv) Diploma and Certificate Courses-18.8.88. (2) Faculty of Education: (i) M. Phil.-5.8.88, (ii) M.Ed.-12.7.88 (iii) M.A. (Educational Planning and Administration)-20.7.88 (iv) M.F.A. B.F.A. B.A. (Hons.) in Art & Art Education-11.7.88 (v) M.A. (Education) Advanced Diploma in Special Education-4.8.88 (vi) B.Ed. Diploma in Basic Training-15.7.88. (4) Faculty of Engineering and Technology: B.Sc. Engineering (Civil, Electrical & Mechanical) B.I. (Civil) Evening Diploma Certificate Courses-15.7.88 (5) Mass Communication Research Centre (i) Ph.D. (ii) M.A. in Mass Communication-25.8.88. A separate Prospectus for the Courses offered by Mass Communication Research Centre will be available from the Office of the above Centre during office hours. (6) Dr. Zakir Husain Library, Bachelor of Library and Information Science (Evening Course)-11.7.88.

J. Candidates seeking admission to the courses of the Faculty of Education and the Faculty of Engineering and Technology must enclose alongwith their Application Forms a Bank Draft for the amount noted against each Course below, drawn in favour of the Jamia Millia Islamia, New Delhi, payable on any Bank in Delhi New Delhi, as Registration and Admission Test Fee (Non-Refundable). Postal Order/Money Order/Cash etc. are not Acceptable.

(1) Faculty of Education: (i) B.Ed. Rs. 50/- and (ii) Diploma in Basic Training-Rs. 50/-.

(2) Faculty of Engineering and Technology: (i) B.Sc. Engg. Rs. 60/-, (ii) B.E. (Civil)-Rs. 60/- and (iii) Diploma Courses-Rs. 50/-.

Khanjha M. Shabbir  
REGISTRAR

# Knowledge Knows no Boundaries. Throwing open new horizons in learning....

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### For further information

Please contact or write to  
Public Relations Officer  
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K 73 Hauri Road  
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Tel: 666666 & 666228

# VIKRAM SARABHAI SPACE CENTRE, TRIVANDRUM

## ISRO VISITING FELLOWSHIPS

### ADVERTISEMENT No. VSSC-110

Vikram Sarabhai Space Centre, Trivandrum, of the Department of Space, Indian Space Research Organisation, invites applications for ISRO Visiting Fellowships, tenable at the Space Physics Laboratory, VSSC, from young scientists below the age of 25 years possessing a First Class Post Graduate Degree in Physics/Applied Physics/Physical Engineering/Meteorology. Only such students who passed or expect to pass their post-graduate degree in 1988 need apply. Students who expect to complete their M.Sc./M.Tech. final examinations before the end of August, 1988, can also apply, stating clearly the expected dates of the examination and the expected date of publication of the result. The selected candidates should have passed the M.Sc./M.Tech. in first class by the time of joining. Selection is based on the performance in a written examination and an interview for those candidates who pass the written test. The examination will test the depth of understanding of physics concepts and the ability to apply them to solve scientific problems. The test and interview are likely to take place over a period of 2 days around the last week of August, 1988 in VSSC, Trivandrum. At the Space Physics Laboratory, opportunities for experimental and theoretical research work on the Space environment of the Earth are available in the following areas;

(i) Electrodynamics of the Ionosphere—Magnetosphere system; (ii) Large scale dynamics and wave motions in the Troposphere, Stratosphere, Mesosphere and Thermosphere; (iii) Atmospheric Aerosols (and minor constituents) and their role in the scattering, Absorption and Transmission of Radiation in the atmosphere; (iv) Physics of the Atmospheric Boundary Layer.

Experimental facilities in SPL include Laser Systems, VHF Radars, Acoustic Radar and Solar Radiometers for studies on the Earth's atmosphere. Selected candidates will be working under the general guidance of experienced Scientists and Engineers in SPL and they are encouraged to register and complete their Ph.D. during the tenure of their Fellowships (only such persons who have strong aptitude and motivation for research need apply).

The Fellowships are granted initially for a period of one year and carry an amount of Rs. 1,000/- per month and a contingent grant of Rs. 3,000/- per year. M.E./M. Tech. Degree holders are eligible for a monthly stipend of Rs. 1,200/-. ISRO may renew the Fellowships annually for another two years subject to the total period of the Fellowships not exceeding a period of three years. For M.Sc. degree holders at the end of two years, if after assessment, the work of the Visiting Fellow is found to be satisfactory, the amount may be raised to Rs. 1,200/- per month. Fellowships amount are likely to be revised soon to make them on par with those of C.S.I.R./U.G.C.

Applications should be sent on a plain paper (to be neatly hand-written or typed in A-4 size paper—210 x 297 mm) alongwith a recent passport size photograph, giving the following details:

1. Post Applied for
2. Advertisement Number
3. Name in full (In block letters)
4. Date of Birth
5. Nationality
6. Father's/Husband's name
7. Address for correspondence (In block letters)
8. Permanent address
9. Educational/Professional qualifications (indicating clearly the examinations passed/Course Undergoing, expected dates of examination result, University/Board, Year of Passing, Class and Percentage of Marks, Subjects taken). Percentage marks for all the semesters completed so far are to be given
10. Details of previous/present employment held or Research/Training experience if any, in chronological order starting from present position backwards (indicating the name of employer with full address, post held, salary drawn period of service, nature of duties)
11. If your replies to (9) to (10) do not cover all the period from School leaving till date, briefly state how you spent the uncovered period.
12. If selected, minimum time required to join the Fellowship.
13. Any other relevant information including references.
14. Whether applied for any post in ISRO DOS before? (If so, the details such as name of the Centre, Advertisement No., Post No., Name of Post, Date of interview, Result of interview, etc. may be furnished).
15. Major Scientific Technical field(s) of interest: Give details of independent research work (if any). List of Publications (if any)

I affirm that information given in this application is true and correct. I also fully understand that if at any stage it is discovered that any attempt has been made by me to wilfully conceal or mis-represent the facts, my candidature may be summarily rejected or my employment terminated.

17. Signature of the candidate with date.

**General Conditions:** (a) Candidates will have to produce proof of the details furnished in their applications as and when required. (b) Applications which do not give full details asked for and those received after the due date will not be considered. (c) Outstation candidates called for the interview will be paid to and fro second class railway fare by the shortest route on production of proof of journey such as railway tickets/ticket number. (d) Applications, completed in all respects, should reach the Senior Administrative Officer, Recruitment, Vikram Sarabhai Space Centre, Trivandrum-695 022 within 15 days of release of this advertisement. The applications should be sent in a cover superscribed "Application for the award of ISRO Visiting Fellowships". (e) Only Indian Nationals need apply. (f) No interim correspondence will be entertained. (g) Canvassing in any form will be a disqualification.

davp 88/185

